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UNITED STATES ARMY POWER PROJECTION IN THE 21st CENTURY:  
THE CONVENTIONAL AIRBORNE FORCES MUST BE MODERNIZED  
TO MEET THE ARMY'S STRATEGIC FORCE REQUIREMENTS  
AND THE NATION'S FUTURE THREATS

A Thesis presented to the Faculty of the U.S. Army  
Command and General Staff College in partial  
fulfillment of the requirements for the  
degree

MASTER OF MILITARY ART AND SCIENCE

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by

MICHAEL J. KAZMIERSKI, MAJ, USA  
B.S., United States Military Academy, 1976  
M.B.A., Webster University, 1988

Fort Leavenworth, Kansas  
1990

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THESIS APPROVAL PAGE

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Title of Thesis: UNITED STATES ARMY POWER PROJECTION IN THE 21st CENTURY: THE CONVENTIONAL AIRBORNE FORCES MUST BE MODERNIZED TO MEET THE ARMY'S STRATEGIC FORCE REQUIREMENTS AND THE NATION'S FUTURE THREATS.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

UNITED STATES ARMY POWER PROJECTION IN THE 21st CENTURY: THE  
CONVENTIONAL AIRBORNE FORCES MUST BE MODERNIZED TO MEET THE ARMY'S  
STRATEGIC FORCE REQUIREMENTS AND THE NATION'S FUTURE THREATS;  
By Major Michael J. Kazmierski, USA, 181 pages.

The modernization of the United States airborne forces is long overdue. As the Army transitions from a European-based forward deployed force to a "versatile, deployable and lethal" Army, the role of the airborne forces must increase. Unfortunately, the focus of the military has been on the defense of Europe. Consequently, the airborne forces have not received the resources necessary to be able to deal with a modern mechanized threat or a 21st Century Third World threat. The author contends that without the immediate modernization of these forces, there is the increasing risk that the Army will be unable to rapidly respond as a strategic force in the very near future.

This study critically analyzes the evolution of the airborne forces with a special emphasis on the divergent paths taken by the United States and the Soviet Union. The Soviet Union is used for comparison, not as an adversary but as a nation whose military leadership has embraced the airborne concept for over 60 years. They have committed years of study, extensive testing and substantial amounts of resources to the modernization of their airborne forces. The result is a modern, light mechanized, strategic force of over six airborne divisions that is versatile, deployable and lethal. (S)

This study continues the comparison of the United States' and the Soviet Union's airborne forces with a comparative analysis of the current airborne forces. The comparative analysis focuses on the combat power and the deployability of these forces. Essential concepts are identified and significant capabilities and limitations highlighted. These identified capabilities and limitations are also included in an analysis of the future threat. This threat analysis identifies a significant change in the future threat to strategic forces which includes the proliferation of armored and mechanized forces, modern air defense systems, nuclear and chemical weapons, long-range ballistic missiles, precision guided munitions, sophisticated surveillance systems, and reconnaissance and target acquisition systems. The author concludes that the future threat, especially with regard to its impact on airborne forced entry, poses serious limitations on the usefulness of the United States airborne forces, as they are currently designed and equipped.

The author provides recommendations for the modernization of the United States' airborne forces, based on the requirement for a successful forced entry capability in a future threat environment. This study concludes that the current United States airborne force is the only force that can provide this nation with the capability of rapidly projecting combat power, anywhere in the world, in the defense of vital interests. However, unless this force is provided significantly more firepower, mobility and survivability, while remaining strategically deployable, the Third World 21st Century threat will prohibit its use.

## ACKNOWLEDGMENTS

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First, I want to thank my wife Margaret for her support and her legal reviews of my many drafts. A great deal of the hundreds of hours spent in front of the computer could have been spent with her. I appreciate her understanding and without her support this thesis would not have been possible.

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## CHAPTER ONE

### INTRODUCTION

There just hadn't been enough money for long-range bombers, nuclear bombs, aircraft carriers, and bazookas too. Now, painfully, at the cost of blood, the United States found that while long-range bombers and aircraft carriers are absolutely vital to its security, it had not understood in 1945 the shape of future warfare.

T. R. Fehrenbach, This Kind Of War<sup>1</sup>

### INTRODUCTION

The two largest airborne forces in the world are in the United States and the Soviet Union. While a modest amount of study has been done on each of these forces separately, there has been no comparative analysis of the two. With the proposed and potential reductions of forward deployed conventional forces, the U.S. has an increasing need for a viable strategic force with sufficient mobility and firepower to accomplish a more demanding global mission. A comparison of the U.S. and Soviet airborne forces in light of these future needs, will help identify the basic concepts upon which future doctrine, materiel and force design can be built.

Because the airborne forces in the U.S. military are such a small part of the overall force structure, they are often overlooked or lumped in with other units (such as the light infantry) when it comes to writing doctrine or redesigning the force. This thesis will attempt to provide some clearly defined and supportable concepts, unique to the airborne forces, for use in the modernization of these forces.



## BACKGROUND

"The United States is a global power with global interests. Threats to these interests arise from a variety of sources, include all levels of conflict and occur in all regions of the world."<sup>2</sup> The Army responds to these threats by having combat-ready forces forward deployed in critical regions and by possessing the capability to respond rapidly to regional contingencies anywhere in the world.<sup>3</sup> As General Carl E. Vuono, the Army's Chief of Staff, says, "The U.S. Army, like the nation's intercontinental nuclear force, is a strategic force. It has been irreplaceable in the past, and will be so in the challenging years ahead. For deterrence, ground forces - forward deployed or rapidly deployable - provide unique capabilities."<sup>4</sup>

U.S. airborne forces provide the forced entry component to the Army's strategic force projection capability. This ability to project a brigade-size conventional force anywhere in the world in a matter of hours can be used as an instrument of national power in support of U.S. national interests. The 82nd Airborne Division's deployment into Honduras in 1988 and into Panama in 1989 are two recent examples of the use of airborne forces as a instrument of national power.<sup>5</sup>

The Soviet Union has also recognized the importance of airborne forces. "Soviet planners today have concluded that airborne force employment has become essential for the conduct of modern offensive operations, with or without the use of nuclear weapons."<sup>6</sup> They have devoted more than 60 years to the development of their airborne forces with many of their early theories still relevant today. They have built on their pre-World War II theories, early exercises, numerous experiments and over 50 airborne operations during World War II.<sup>7</sup> In the past 25 years they have conducted extensive scientific analysis and countless experiments which have resulted in significant force structure

changes, equipment developments and evolving operational concepts.<sup>8</sup> As a result of this long-term and continuing Soviet commitment to airborne forces, the Soviets have markedly improved the firepower, mobility and survivability of these forces.

The U.S. has not made the effort the Soviets have in the development and modernization of airborne forces. U.S. airborne forces are much the same as they were in World War II. They have failed to develop despite the significant increases in the threat to airborne forces. This threat includes the worldwide proliferation of: nuclear, chemical and biological weapons; long-range ballistic missiles; precision guided munitions; sophisticated surveillance, reconnaissance and target acquisition systems; armored and mechanized forces; and modernized air defense systems.

With the impending conventional force reductions, mostly from forward deployed forces, the need for a viable strategic force is increasing. The requirement for this force to be rapidly deployable and capable of "forced entry" supports what the Soviets have already determined; that airborne forces are essential for the conduct of modern offensive and defensive operations. The Secretary of Defense, Richard B. Cheney acknowledged this need when he said, "The nation needs a highly flexible force that can be more creatively employed to deal with contingencies anywhere in the world. This force . . . must have an optimum mix of strategic deployability, lethality and tactical mobility."<sup>9</sup> Maybe it's time to look to the Soviets and learn from their extensive developments in airborne doctrine, equipment and force design.

#### PURPOSE OF THIS THESIS

The purpose of this thesis is to identify the concepts for the employment of the future airborne forces, from which recommended changes

to the current doctrine, materiel and force design of the U.S. airborne forces can be developed. The recommended changes are necessary for the modernization of these forces.

#### RESEARCH OBJECTIVES

The objectives of this research are as follows:

1. To review the development of airborne forces over the past 50 years in both the U.S. and the Soviet Union.
2. To determine how and why the Soviets have modernized their airborne forces.
3. To compare and contrast the current airborne doctrine, materiel and force design of the U.S. and the Soviet Union, with an emphasis on mobility, firepower and survivability.
4. To identify the Army's future strategic force requirements, the future threat to airborne forces and the future missions likely to be assigned to the U.S. airborne forces.
5. To provide recommendations for the modernization of U.S. airborne forces.

#### ASSUMPTIONS

The assessments in this study are made in light of the following assumptions:

1. The U.S. military will continue to maintain airborne forces in the active duty military and these forces will continue to be a significant component of the Army's strategic forces.
2. Modernization of the U.S. airborne forces to include doctrine, materiel and force design will begin within the next five years.

3. The additional resources, to include research and development funds, required to modernize the airborne forces will be made available.

4. The C-17 airlift aircraft will be fielded in sufficient numbers to be a factor in the future airlift and modernization of the airborne forces.

5. Nuclear and chemical weapons, ballistic missiles and precision guided munitions will continue to be a threat to large concentrations of forces. And, the number of countries that possess these capabilities will continue to increase.

6. The number of U.S. forward deployed conventional forces will be reduced.

#### DEFINITION OF TERMS

Airborne Forces: U.S. airborne forces specifically refer to the U.S. Army's conventional airborne forces. These forces are normally part of the 82nd Airborne Division but may include elements of the one of the three separate airborne battalions located in Panama, Alaska and Italy. Although there are other types of airborne units, such as special forces and ranger, these units are not included in the term "airborne forces" for the purpose of this paper. Likewise, the Soviet "airborne forces" will only include their conventional airborne units.

Levels of War: This thesis will use the FM 100-5, Operations, definitions of the three levels of war. Levels of war are the broad divisions of activity used in preparing for and conducting war. They are strategy, operational art and tactics.

(a) The strategic level of war refers to the employment of armed forces of a nation in order to secure the national policy objectives. It is the level of the objective that constitutes a

strategic mission and it is for this reason that a small force such as an airborne unit can accomplish a strategic mission. The Soviets, according to FM 100-2-1, The Soviet Army, normally conduct strategic actions (operations) only at the national or theater level.

(b) Operational art, or the operational level of war, refers to the conduct of campaigns by large units, normally corps level and higher, to attain strategic objectives. Soviet operational warfare is conducted by fronts and armies. The recent resurrection of two additional levels of war by the Soviets, the operational-strategic and the operational-tactical, may prove confusing when comparing them to the U.S. levels of war. Generally discarded during the nuclear period of the 1960s, these two resurrected levels of war overlap with the higher and lower levels that make up their name.<sup>10</sup>

(c) The tactical level of war encompasses specific techniques smaller units use to win battles and engagements. For the Soviets, tactics are also conducted by smaller units and are usually considered actions (operations) at division level or lower.

Combat Power: In accordance with FM 100-5, Operations, combat power is the ability to fight. It measures the effect created by combining maneuver, firepower, protection and leadership in combat actions against an enemy in war. The subelements of combat power, to be used for comparison in this thesis, can be further defined as follows:

(a) Maneuver: Maneuver is the movement of forces in relation to the enemy to secure or retain positional advantage. It is the dynamic element of combat which is ultimately the means of achieving surprise, psychological shock, physical momentum and moral dominance necessary for smaller forces to defeat larger ones. A study conducted by the Historical Evaluation and Research Organization in 1984,

indicates that the use of maneuver alone was the most effective way to bring about the defeat of an enemy, five times more effective than firepower alone.<sup>11</sup>

(b) Firepower: Firepower is the destructive force essential to defeating the enemy's ability and will to fight. Additionally, firepower facilitates maneuver by suppressing the enemy's fires and disrupting the movement of his forces.

(c) Protection: Protection is the conservation of the fighting potential of a force. It consists of two components: to counter the enemy's firepower and to take care of the soldiers' physical needs. This thesis will only consider the first component of protection which includes all actions that are taken to counter the enemy's firepower and maneuver. The term *Survivability* will be used to represent this first component of protection.

Contingency Operations: Contingency operations, as defined in FM 100-5, are military actions requiring rapid deployment to perform military tasks in support of national policy. For this thesis, contingency operations also imply the use of active component forces, a deployment from a CONUS base, deployment into an area with no sustaining base and a short duration (less than 90 days) operation.<sup>12</sup>

Forced Entry: Forced entry is used to describe the ability of a force to project combat power and to physically occupy terrain not under friendly control regardless of the lack of, or availability of ports or airfields. Forced entry at the strategic level can be accomplished by airborne assault and amphibious assault.

AirLand Battle - Future (ALB-F): The ALB-F concept is an evolution of our current AirLand Battle doctrine to meet our global requirements in the year 2004 and beyond. It will guide development of

our doctrine, equipment, organization, training and leader development. The focus is on how we will fight in 15 years.<sup>13</sup>

### LIMITATIONS

No classified materials or OPLANS will be cited. The scope of the study will be further limited by time and financial constraints. Finally, the majority of information was obtained from primary and secondary sources available in the U.S. Army Command and General Staff College library, the Soviet Army Studies Office, the Combined Arms Combat Development Activity and the 82nd Airborne Division.

For the purposes of this research, deployability will be studied in terms of airframe requirements using U.S. Air Force aircraft, primarily the C-141, C-5 and the C-17. No commercial aircraft will be considered in the movement of U.S. airborne assets. The Soviets' Aeroflot aircraft will not be excluded from the deployability consideration of the Soviet forces. However, the Aeroflot pilots, who are all Military Transport Aviation reservists, will only be considered current in the necessary pilot skills required for assault landing operations.

### DELIMITATIONS

1. The recommendations provided will not include computer assisted operational research and system analysis.
2. This research study will not include a detailed comparison of the airborne forces of nations other than the U.S. and the Soviet Union.
3. This research study will not include a detailed study of the use of airborne forces during World War II.

4. The cost of modernizing the airborne forces will not be computed. However, some cost comparisons will be conducted.

5. Leadership and the second component of protection (to take care of the soldiers' physical needs), will not be considered when combat power is analyzed and compared. The complexity of quantifying and comparing these qualities exceeds the limits of this study.

#### SIGNIFICANCE OF STUDY

The future of the Army's airborne forces must be given some serious study. Unless the U.S. modernizes the airborne forces, the future of the Army as a strategic force is in question and the ability of the National Command Authority to project power during a national crisis is in jeopardy. Because changes in equipment and force design take many years to complete, the urgency of this effort must not be underestimated. This study will provide recommendations for our future airborne concepts, doctrine, equipment and force design. These recommendations will be based on a comparative analysis of U.S. and Soviet airborne forces and will consider the likely threat to future airborne forces. The rationale for the Soviets' massive modernization of their airborne forces will be the focus of much of the comparison. There is little doubt that the airborne forces of the U.S. are currently a viable contingency force. However, unless something is done now to plan for their future, this unique strategic force will become obsolete.

#### METHODOLOGY

This research was conducted in an effort to provide worthwhile recommendations to both the Combined Arms Center and the Airborne Community for consideration in planning the future doctrine, materiel and force design of the U.S. airborne forces. The investigation methodology will follow these procedures:



1. A brief look at the history and evolution of U.S. and Soviet airborne forces.

2. A review of the current missions, capabilities and limitations of the U.S. and Soviet airborne forces.

3. A detailed look at the reasons for the Soviet's extensive modernization of their airborne forces over the past 20 years. A look at the rationale for the U.S.' failure to direct similar attention to the U.S. airborne forces.

4. A comparative analysis of the combat power (maneuver, firepower and survivability) of current U.S. and Soviet airborne forces.

5. Identification of the future U.S. airborne force missions and future Third World threats. An analysis of how these future threats impact on the U.S. airborne forces and other U.S. strategically deployable forces.

6. Recommendations for the modernization of the U.S. airborne forces.

## CONCLUSION

There is an increasing need for a deployable, versatile and lethal airborne force in the future. However, unless a concerted effort is made now, to determine what that force must be capable of doing in the future, the modernization of the airborne forces is likely to meander along as it has in the past. This thesis is an attempt to initiate that effort which will prevent the day when the U.S. airborne forces cease to be a viable force.

## CHAPTER ONE ENDNOTES

<sup>1</sup> MAJ Michael Cannon, "Task Force Smith: A Study in (Un)Preparedness and (Ir)Responsibility," Military Review, Feb. 1988, p. 73.

<sup>2</sup> General Carl E. Vuono and John O. Marsh, Jr., U.S. Army, The United States Army Posture Statement FY 90/91 (Washington D.C.: Presented to the First Session, 101st Congress), p. 1.

<sup>3</sup> U.S. Army, Army Focus (Washington D.C.: HQDA (DACS-DMC) June 1989), p. 6.

<sup>4</sup> General Carl E. Vuono, "The United States Army is a Strategic Force," Armed Forces Journal International, Feb. 1989, p. 69.

<sup>5</sup> Elements from the 82nd Airborne Division were deployed to Honduras in 1988 as a U.S. "show of force" in response to the Nicaraguan offensive operation that had crossed over the Nicaraguan-Honduran border, in an effort to destroy Contra bases in Honduras.

<sup>6</sup> Dr. Graham H. Turbiville, Jr., "Soviet Airborne Operations in Theater War," Foreign Policy, Volume XIII, Nos: 1-2, 1986, p. 183.

<sup>7</sup> V.F. Margelov, "Development of the Theory of Employment of Airborne Troops in the Postwar Period," Voenno-istoricheskii zhurnal, Jan. 1977, p. 54. (The majority of the 50 airborne operations mentioned in this quote were small tactical operations of less than regiment-size.)

<sup>8</sup> Dr. Graham H. Turbiville, Jr., "Soviet Desant Forces," International Defense Review, Volume 21, Sep.-Oct. 1988, p. 2.

<sup>9</sup> Congressman Richard B. Cheney and Major (P) Thomas N. Harvey, "Strategic Underpinnings of a Future Force," Military Review, Oct. 1986, p. 10.

<sup>10</sup> Turbiville, "Soviet Desant Forces," p. 7.

<sup>11</sup> Robert McQuie, "Battle Outcomes: Casualty Rates as a Measure of Defeat," Army Magazine, Nov. 1987, p. 32.

<sup>12</sup> U.S. Army AirLand Battle Future Forces Division, Current Forces Directorate, Combined Arms Combat Development Activity, (Fort Leavenworth, KS: briefing notes), Oct. 1989. (Cited hereafter as ALBF-F).

<sup>13</sup> Ibid.

## CHAPTER TWO

### THE HISTORY AND EVOLUTION OF AIRBORNE FORCES

Throughout the ages, effective results in war have rarely been attained unless the approach has had such indirectness as to ensure the opponent's unreadiness to meet it. The indirectness has usually been physical and always psychological.

B. H. Liddell Hart<sup>1</sup>

#### INTRODUCTION

Through his study of military strategy from the early Greek Wars to the modern Arab-Israel Wars, Liddell Hart identified the "indirect approach" to warfare as the essence of successful military strategy. The speed and depth of an airborne assault provide both the physical and psychological shock of the indirect approach. This chapter will discuss some of those significant airborne successes and some failures instrumental in the development of the airborne warfare concept. First, I will briefly review the evolution of the airborne from its inception, through the military build-up for World War II. Then, in some detail, I will discuss the use of airborne forces by the Germans, Americans and Russians during World War II. Some of the "lessons learned" identified in this chapter will be used to support positions presented later in this thesis.

#### PRE-WORLD WAR II AIRBORNE HISTORY

The concept of airborne warfare has existed for centuries. The Greeks are credited with fables about flying men conducting surprise attacks in the rear of their enemies. The Chinese are believed to have designed a workable parachute, while Leonardo da Vinci, in the fifteenth century, actually designed and tested a parachute. However, it was not

until the launching of balloons in the 1780s that the idea of vertical envelopment began to be seriously considered. Napoleon, while massing for the invasion of England, considered the use of balloons to carry his assault troops across the Channel. "One idea was for 2,500 balloons each carrying four men to be launched before the sea invasion, to land in England a few hours in advance of the main body and cause confusion, if not complete surrender."<sup>2</sup> While "balloon-borne" operations failed to materialize, the idea of carrying troops by air would again be considered with the development of the airplane.

In the fall of 1918, in France, Brigadier General Billy Mitchell asked his boss, General John J. Pershing, to assign him a division of troops to be trained to use parachutes. Pershing and his staff examined the plan and saw how airborne troops could surprise the enemy, as well as causing the enemy confusion and a diversion of his efforts. Although interested, Pershing shelved the plan because it was too novel to risk at that point in the war. Billy Mitchell would have to wait, since the war ended a few weeks later with the Armistice of November 11, 1918. Following the war, Mitchell did conduct a successful experimental airdrop with a small party of parachutists at Kelly Field, Texas but the military authorities were not impressed. The airborne concept would go undeveloped as the Army sank back to its old ways of planning for the next war with the weapons of the last.<sup>3</sup>

In 1927, Italy became the first country to try practical military parachuting using an improved form of parachute. This new parachute, the Italian "Salavatore," provided a significant technical step forward. Rather than the ripcord type escape parachute used by pilots, the Salavatore parachute was carried on a man's back and deployed through the use of a static line which pulled out the canopy. By 1930, the Italians had several battalions trained in parachuting.

Though first to organize their airborne forces, Italy never deployed these forces in combat.<sup>4</sup>

In the 1930s the Soviets took the lead on the development of the airborne concept. The decade began with an experimental parachute operation conducted on 2 August 1930. On that day, the official birthday of the Soviet airborne forces, they conducted an exercise near Voronezh. The jump, carried out by a lieutenant and eight men, armed with machine guns and rifles, was a success and ushered in the third dimension of offensive maneuver to modern warfare, the vertical envelopment. Later that year, during maneuvers in the same location, the Soviets dropped an eleven-man detachment into the "enemy rear." The detachment raided a corps headquarters, captured the corps commander and escaped back to friendly lines. Following these successful exercises the Soviets mandated the conduct of additional airborne exercises in an effort to emphasize both their technical and tactical aspects.<sup>5</sup>

These early experiments gave rise to the formation of an experimental aviation detachment in Marshal Tukhachevsky's Leningrad Military District. The unit tested organizational concepts and equipment while working with other ground forces and naval forces. Tukhachevsky, considered the father of the Soviet airborne, aggressively pursued the development of the Soviet airborne. He published several articles articulating the role and the missions of the airborne forces. Finally, in December 1932, the Revolutionary Military Soviet (*Revoensovet*) authorized the creation of an airborne brigade in the Leningrad Military District. Within the next year, the *Revoensovet* would create an additional 29 airborne battalions totaling over 10,000 men.<sup>6</sup>

In addition to increasing the size of their airborne forces, the Soviets continued to develop their airborne doctrine. The significant increase in aircraft lift capability, provided by the new four engine TB-3 bombers, served as a catalyst to the evolution of their doctrine. In 1935, as part of the Kiev maneuvers, the Soviets demonstrated to the world the air movement of a division from Moscow to Vladivostok. The 14,000 troops and their equipment were airlanded following the seizure of the airfield by over 1,000 airborne troops.<sup>7</sup> Subsequent maneuvers, from 1935 to 1937, verified both the utility of the airborne forces and the doctrinal concepts for their use. The Moscow exercise of 1936 involved the airdrop of over 5,000 airborne troops to secure an airfield with the follow-on airlanding of the 84th Rifle Division. Although, the Soviet airborne forces continued to increase in size, adding two new airborne brigades in 1936 and four more in 1938, Stalin's brutal purges of the late 1930s crippled the further development of the doctrine and the refinement of the airborne techniques.<sup>8</sup>

The Western world had military observers at many of the Soviets' major maneuvers, including the 1935 Kiev maneuvers and the 1936 Moscow exercise. The Soviets even produced a public relations film on airborne operations.<sup>9</sup> Yet, the West's initial interest in the airborne dimension of warfare soon died down thanks to a combination of ill-considered indifference and a growing preoccupation with more urgent matters. Most European countries were overwhelmed with the substantial effort required to raise a modern army in response to the growing German threat. They had no resources to spare on the production of transport aircraft and specially trained airborne troops for what seemed to be untried ideas.<sup>10</sup> By the late 1930s, American military students were aware of the developments in airborne operations and studied the problems of airborne warfare at the U.S. Army Command and General Staff College.

But in Washington, airborne operations were still considered fluff and no serious attention was paid to the development of an American airborne force.<sup>11</sup>

Unlike the rest of the Western world, the Germans energetically took up the idea of airborne warfare as a complement to the armored thrusts of the *blitzkrieg* style of warfare. Germany was well aware of the Russian experiments with airborne troops and followed them closely with the help of secret military agreements they made with Russia in 1922.<sup>12</sup> The idea of airborne warfare suited the German philosophy of that time. Surrounded by enemies, determined to strike the first blow and cognizant of the value of surprise in destroying the enemy's morale, airborne warfare seemed tailor made for the *blitzkrieg*. Additionally, the groundwork for the airlift support of airborne warfare was already laid. Since 1928, the German airline Lufthansa had been buying aircraft which could be utilized as transports in a time of war. By 1935, over 250 of the aircraft were available. These aircraft provided the needed airlift to make the German airborne a viable force in the coming war.<sup>13</sup>

#### THE GERMAN WORLD WAR II EXPERIENCE

The Germans were the first to use airborne forces in major combat operations. As a result of their keen interest in this new approach to warfare and the Russian stagnation that accompanied their purges, by the late 1930s the Germans had taken the lead in the development of airborne forces. Under the command of Major-General Kurt Student, the German airborne forces, the 7th Flieger and the 22d Infantry Divisions, prepared for war.

Although the German airborne forces were ready to deploy in Czechoslovakia in 1938 and Poland in 1939, they were not used. So, when Hitler told General Student to prepare for airborne operations on the

Western Front, General Student was determined to see that the airborne forces would play a major part in the upcoming operations.<sup>14</sup> It was 9 April 1940, when Hitler finally unleashed the airborne "weapon" on the Allies. The invasion of Denmark and Norway depended heavily on surprise, a surprise only possible with the use of airborne forces. A single airborne battalion captured four separate airfields and a key road bridge, providing the security needed for the build up of follow-on forces. Within two hours, the Luftwaffe was operating from the captured runways and establishing forward fighter bases, while airlanded troops built up a force large enough to compel the surrender of the two countries. For the Allies there was grave concern. Never before had an enemy moved so far, so fast and so deep into friendly territory without warning.<sup>15</sup> For the Germans, despite the success of the Scandinavian campaign, the airborne still had to prove itself. The assault on the prepared defenses of the Western Front would be their first "real" test.

Unfortunately for General Student and the German airborne forces, Germany's use of airborne forces in the Scandinavian campaign forewarned the Dutch of what to expect and they altered their deployment accordingly. On 10 May 1940, the German airborne forces that tried to seize the airfields around The Hague, were met with heavy fire. The defenders were ready and the parachutists were quickly rounded up. As the airlanded units came in to land they were decimated. All over the Hague area there were smoking aircraft wrecks; the Dutch were triumphant, but also bewildered and nervous. South of The Hague, the 7 Flieger Division fared much better, mostly because it was not dependent on the landing of aircraft to get troops on the ground. The German airborne forces in the south seized a number of airfields, several key bridges (intact), and the "impregnable" Belgian fortress of Fort Eben-Emael. These objectives were critical to the success of the



German *blitzkrieg* across the low countries. The neutralization of the Belgian Fort Eben-Emael by the German airborne forces provides an excellent example of their effectiveness. Fort Eben-Emael, a large underground fort dominating three well defended bridges over the Albert Canal, was manned by over 1,200 soldiers. A 400-man strong glider force silently attacked at dawn with nine gliders (78 men) landing on top of the fort. Using hollow-charge explosives, they blasted their way through the roofs of the gun emplacements and quickly disabled the guns. With the guns out, the remainder of the force was able to quickly secure two of the three critical bridges over the canal. The German armored forces were then able to cross the heavily fortified Belgian border without a fight, in a matter of hours.<sup>16</sup> The airborne operations in the West were not only tactically successful, but also operationally successful. The very fact that large forces could penetrate deep behind the Dutch defenses, undoubtedly broke the resistance of the Dutch and saved the German Army the cost of a serious fight in capturing Holland.<sup>17</sup> Holland surrendered in four days.

Germany's successful airborne invasion of the island of Crete in May of 1941 ushered in a new era of conventional warfare. More than 22,000 men and 1,450 aircraft were used by the invading Germans in the first battle to be fought without traditional land or sea augmentation.<sup>18</sup> The German plan was fairly complicated. General Student planned to conduct several airdrops creating a number of small airheads, at first without any definite point of main effort, and then expanding the airheads until they ran together. This technique was to come to be called "oil spot tactics."

The four "oil spots" on Crete were the airfields at Maleme, Retimo, Herakleion and Canea.<sup>19</sup> The objectives were well defended and the 4,300 German paratroops suffered heavy casualties. By nightfall on

the first day, none of the airfields were secured and the four German airborne regiments were surrounded and under considerable pressure. The next morning General Student sent into Maleme the reserve airborne battalion and was still unable to gain control of the airfield. In desperation he started the airland operations at Maleme even though the airfield was only partially controlled and still under British fire. This tipped the balance in his favor and the airfield was finally secured. The remainder of the 5th Mountain Division airlanded at Maleme and the Germans gradually rolled up the island from west to east. British casualties totaled 17,325 while the Germans lost 5,678, mostly paratroopers who dropped in on the first day.<sup>20</sup> Although costly, the airborne assault of Crete demonstrated, as no other campaign had, the full effectiveness of airborne warfare.

The heavy losses at Crete spelled the end for the German paratroopers. General Student lamented that "Crete was the grave of the German paratroopers" and Hitler said, "after Crete, we shall never do another airborne operation. . . . The day of the paratrooper is over."<sup>21</sup> It is ironic that the operation that ended the German airborne operations, motivated both the British and the Americans to devote considerable energy into the development of their fledgling airborne forces. While the success of the German airborne at Fort Eben-Emael got the American General Staff's attention, "Crete was the absolute proof of the efficiency of airborne operations."<sup>22</sup>

#### THE AMERICAN WORLD WAR II EXPERIENCE

In 1940, the War Department in Washington believed that all it took to make an airborne force was to drop infantryman by parachutes. The paratrooper would operate against key points in small groups but would remain a part of the standard infantry division.<sup>23</sup> On August 16,

1940, a test platoon was designated and the first jump was made from a Douglas B-18 bomber. The success of the test program led to the organization of the 501st Parachute Battalion, commanded by Major William M. Miley. However, by the middle of 1941, the state of training of the 501st was marginal, at best, mainly due to the lack of practice; there had only been one or two minor training exercises. As America approached World War II, the U.S. Army grew seven fold, to over one and a half million strong, yet there was still only one airborne battalion.<sup>24</sup> It took Germany's airborne success in Crete, in May 1941, to get the U.S. airborne program into high gear.

By the end of 1941, the American airborne force had expanded from one battalion to four, the 501st, 502nd, 503rd, and 504th. This expansion continued as each of the four battalions was turned into a regiment and by August 1942, the first two airborne divisions were formed, the 82nd and the 101st. Thus, in less than 14 months the American airborne forces grew from one battalion to two divisions. Each division was initially organized with one parachute regiment and two glider regiments. Later, they would change to two parachute regiments and one glider regiment. Additional airborne divisions were soon added: the 17th in late 1942, the 11th in February 1943 and the 13th in 1944.<sup>25</sup> With the opening of the North African Front by the British and Americans, in November 1942, the 2nd Battalion of the 503rd Parachute Infantry Regiment would initiate the American airborne contribution to the war. The battalion's mission was to seize the Tafaraoui and La Senia airfields in Algeria. However, there were many problems and the operation was considered only marginally successful.

Upon conclusion of the operations in North Africa (May 1943), preparations began for the invasion of Sicily (Operation Husky). Sicily was very important to the development of the American airborne

employment. Inexperience in planning and mounting such a complex operation, as well as a lack of coordination among the services, contributed to the questionable results.<sup>26</sup> The complicated flight routes, untrained aircrews and high winds left the first wave of paratroopers spread over 65 miles and 60 percent of the gliders lost in the sea.<sup>27</sup> The second wave, dropping the next day, fared little better. Friendly fire shot down 27 and damaged another 37 of the 144 transport aircraft (C-47s) carrying the men of the 504th Regimental Combat Team. Because they had failed to prepare in peacetime, the American paratroopers were required to develop the doctrine and test the tactics of airborne operations while under enemy fire.

Despite the problems, the accomplishments of the airborne forces in Sicily were acclaimed by many. German General Student said of the operation, "It is my opinion that had it not been for the Allied airborne forces blocking the Hermann Goering Division from reaching the beachhead, that division would have driven the initial seaborne forces back into the sea."<sup>28</sup> Sicily was the price the American paratroopers would have to pay for the obstinacy of the American General Staff. They failed to accept the need for a viable airborne force until the German successes of 1940 and 1941 provided unquestionable proof of their value. Then, with little preparation, they rushed the newly formed airborne forces into battle. They were still thinking of the airborne forces as infantryman in parachutes. As General Ridgway said, "Deplorable as the loss of life which occurred, I believe that the lessons learned could have been driven home in no other way."<sup>29</sup> Following the operation, General Eisenhower declared, "that with proper training and larger troop formations there was no need for failure."<sup>30</sup> From then on airborne warfare was to be a highly organized joint affair, with large numbers of aircraft and troops, and with proper air support.

The American airborne forces would be used again in Italy, this time as firemen. The costly lessons from Sicily were used by the airborne forces as they reinforced General Mark Clark's invasion force at Salerno Bay, September 1943. The German 16th Panzer had found a gap in the beachhead and was driving into the flank of the 36th Infantry Division. The division began to collapse. General Clark was frantic and requested airborne reinforcement. The shortage of shipping made reinforcement by sea impossible. Within 15 hours 1,300 paratroopers from the 82d Airborne Division were on the ground within the beachhead. Another 600 were dropped over 25 miles behind the German lines to disrupt German communications. The next night the 505th Regimental Combat Team was dropped into the beachhead and, after some touch and go fighting, the Germans were driven back. The Salerno beachhead was secured and the paratroopers had won a reputation as an organization that could respond quickly and handle the toughest assignments.<sup>31</sup>

Meanwhile, in the Pacific, there were several airborne operations of one kind or another. Most of these were battalion-size or smaller. Although a few somewhat larger operations were carried out, they were never on the scale of the huge divisional and corps operations which took place in Europe. In the Pacific, the U.S. could never muster either the men or the machines for large-scale airborne operations and the emphasis was all on seaborne landings. Once the amphibious style of warfare was set, there was no changing it. So the airborne arm remained very much a secondary weapon.<sup>32</sup>

Despite the reduced scale, the war in the Pacific did demonstrate a number of uses for airborne troops. On 5 September 1943, the 503rd Parachute Infantry Regiment dropped over 1,700 parachutists into the Markam River Valley, New Guinea, in conjunction with an amphibious assault on the town of Lae. The operation was very

successful. Ten months later, the 503rd was used to reinforce the congested Kamiri airstrip on the New Guinea island of Noemfoor, recently secured by an amphibious assault. The regiment was then used to help clear the island, which took nearly six weeks of heavy fighting. The newly formed 11th Airborne Division, after a year of waiting, was finally used in the invasion of the island of Luzon, 3 February 1945. Unfortunately, the over-cautious use of the airborne by the Eighth U.S. Army resulted in the parachutists being met on the drop zone by the advanced guard of the ground troops conducting the linkup.<sup>33</sup> Later in February, a very successful company-size airborne raid was conducted by elements of the 11th Airborne Division. The surprise drop at the Los Banos internment camp resulted in the release of over 2,000 American prisoners. Two days later the 11th Airborne Division conducted its final airborne operation as part of the mop-up operations on the island of Luzon. An airborne task force was dropped forward of the advancing Sixth Army to intercept the Japanese withdrawal. The operation was a success and the battle for Luzon was won.

While the 11th Airborne Division was on Luzon, the 503rd Parachute Regiment would conduct the most significant and successful airborne operation of the war in the Pacific, the assault on Corregidor. A 6,000 man Japanese garrison had turned the island, with its 400 foot high cliffs, into a fortress. Yet, on 16 February 1945, in 15 to 20 knot winds, a single battalion of the 503rd Parachute Infantry Regiment dropped on two very small (150 by 250 yard) drop zones completely surprising the Japanese. While the Japanese were well prepared to defend against an amphibious assault, they were not expecting an airborne assault. By nightfall the 503rd had control of the top of the island and cleared the way for the successful seaborne assault. Without the parachute assault, the amphibious landing would

have been enormously costly if not impossible. The astonishing results inevitably cause one to wonder why the same technique was not used to save thousands of American lives in the expensive amphibious island-hopping campaign against Japan from 1942 to 1945.<sup>34</sup> Corregidor, like the German airborne assault of Fort Eben-Emael, proves that an expected attack in an unexpected manner can achieve remarkable results out of all proportion to the size of the attacking force.<sup>35</sup>

#### THE AMERICAN WORLD WAR II EXPERIENCE IN NORTHWEST EUROPE

After the surrender of Italy on 3 September 1943, the airborne divisions were pulled back to England for retraining and reinforcement in preparation for the invasion of Northwest Europe. The lessons of Sicily had been assessed and many of the problems worked out; the future of the airborne was assured. However, unlike the German strategic use of airborne forces to capture Crete, the American airborne was orienting toward a tactical role. As stated in the 9 October 1943 War Training Circular Number 113, "Airborne troops should not be employed unless they can be supported by other ground or naval forces within approximately three days, or unless they can be withdrawn after the mission is accomplished."<sup>36</sup> Despite the doctrine, General Henry H. Arnold, Air Force Chief and General George C. Marshall, Army Chief of Staff, recommended to General Eisenhower that the airborne be used in a much bolder, operational manner in support of the invasion of France. It is not surprising that General Eisenhower chose the more conservative use of airborne forces.<sup>37</sup> In a personal letter from Eisenhower to Marshall dated 20 September 1943, he said, "...I do not believe in the airborne division."<sup>38</sup> Although, further in the letter, Eisenhower did indicate his support for the use of airborne forces in smaller than division-size operations.

For the invasion of France, Operation Overlord, there was only enough shipping to support a five division amphibious assault. The three airborne divisions, the U.S. 82nd Airborne Division, the U.S. 101st Airborne Division and the British 6th Airborne Division, were used to increase the initial assault strength to eight divisions. The airborne plan was simple, to isolate the amphibious beaches by blocking German reinforcements of those beaches and by engaging enemy forces retreating from the beaches. At 0130 hours 6 June 1944, 822 C-47s carrying 13,000 men began dropping the leading units of the two U.S. airborne divisions into the Cotentin Peninsula near the towns of Carentan and Ste Mere-Eglise. Enemy antiaircraft fire, fog and poor navigation broke up the tight formations and the units were spread all over the peninsula, a few even landing at Cherbourg 29 miles away. (An excellent account of the American airdrop in Normandy is available in S.L.A. Marshall's book Night Drop.) Yet, despite the scattered delivery, the actions by the 82nd and the 101st Airborne Divisions succeeded in all essential purposes. About 1,500 men were casualties of one type or another from the assault but many small groups of American parachutists began fighting isolated battles all over the area. The fact that the drop was so scattered confused the German defense and stopped all coherent German movement. At the same time as the American drop, on the east flank of the invasion, two brigades of the British 6th Airborne Division were dropped. Like the Americans, they were quite scattered but succeeded in securing the area inland from the beaches and sealing off the left flank of the invasion zone from the expected German counterattacks. The amphibious landings in the areas where the airborne forces had been deployed took place without much opposition and the few German efforts to counterattack the beach landings were disrupted by the airborne forces. The amphibious forces quickly linked up with the



airborne forces and within three days the Allied beachhead in France was secured.<sup>39</sup>

The most significant problem with the airdrop into Normandy was the inability of the aircrews to deliver the paratroopers accurately into battle, especially at night. This was a problem that had plagued the American airborne since Sicily. The Allied effort to resolve this problem was two-fold. First, the Allied forces would conduct the remainder of their airborne operations in daylight. And second, Eisenhower approved the formation of a single organization to conduct joint planning and training between the troop-carrier commands and the airborne forces. On 2 August 1944, the First Allied Airborne Army was formed under the command of U.S. Air Force Lieutenant General Lewis H. Brereton. The control of the ground operations would come under the two newly formed airborne corps, the U.S. XVIII Airborne Corps and the British I Airborne Corps. Brereton would quickly mold the army into an efficient and effective force.<sup>40</sup> In less than two months, the First Allied Airborne Army would be put to the test in the largest airborne operation in history, Operation Market Garden.

The plan for Operation Market Garden was first, to lay down an airborne carpet of three airborne divisions ahead of General Montgomery's Second Army (Operation Market). A single British corps, spearheaded by an armored division, would then advance along a sixty-four mile corridor to Arnhem, over the seven major bridges secured by paratroopers (Operation Garden). The Second Army was to follow, cutting off all the German forces in Western Holland and sweeping down into the heart of Germany, thus bringing the war to a close in 1944. (Cornelius Ryan provides an in-depth look at the operation in his book A Bridge too Far.) The airborne techniques used in the operation were good. Units and formations were dropped or landed with remarkable precision as

cooperation between the airborne units and the troop-carrier units was excellent. Nevertheless, the operation failed for several reasons. The German strength and ability to react was certainly underestimated. This, coupled with the poor weather on the days following the initial assault, the loss of critical radio communication and some basic flaws in the plan, led to the 1st Airborne Division's failure to gain and hold the last objective, the bridges at Arnhem. The decision by the Royal Air Force to avoid the expected enemy antiaircraft flak in the vicinity of Arnhem and to drop the British 1st Airborne Division nearly seven miles to the west of the town, is still the subject of much debate. Needless to say, the airborne forces did not fare well, even against the single mechanized battalion that blocked their advance to Arnhem. Subsequent mobile German reserves crushed the light airborne forces west of Arnhem before the XXX British Corps could linkup. Despite the failure at Arnhem, the Allies, in a matter of days, still cut a 60 mile deep corridor into the German northern flank, spearheading a significant advance in the Allies lines. The operation proved that the airborne theory of warfare was effective and that big airborne operations were worth the enormous effort and resources involved in mounting them.<sup>41</sup>

The best planned and executed airborne operation of the war was also the last. Operation Varsity had two airborne divisions, the British 6th and the American 17th, drop within range of friendly artillery on the far bank of the Rhine River in support of the Second Army's river crossing near the town of Wesel. Because of the expected antiaircraft fire, the paratroopers were to be delivered as quickly as possible. By flying tight formations using Vs of V (virtually nine airplanes abreast), the troop-carriers reduced the time required to airdrop a regiment to 10 minutes.<sup>42</sup> At 1000 hours, 24 March 1945, almost 19,000 men were delivered onto four drop zones and four landing

zones within 40 minutes. This massive airdrop was accomplished using the C-47 aircraft which has a troop carrying capacity of only 20 men, less than one-seventh that of our current C-141B aircraft (20 versus 155 paratroopers). Given the time (four years) and the resources, the Allied airborne forces evolved into a powerful tactical weapon. With each operation, more and more of the difficulties of executing airborne warfare were overcome. The final operation, Operation Varsity, was a tribute to their successful development of the vertical envelopment. Meanwhile, the development of the Soviet airborne had regressed.

#### THE SOVIET WORLD WAR II EXPERIENCE

Unlike the Western Allies, the Soviets were unable to develop their airborne forces during the war. As noted earlier, the rapid evolution of the Soviet airborne in the 1930s, under Marshal Tukhachevsky, was cut short by the purges of Stalin in 1937-1938. Still, the Soviets had a fairly substantial airborne force during the Soviet-Finnish War of 1939-40, six 3,000 man airborne brigades and three 1,660 man airborne regiments, well over 20,000 airborne troops. Despite the numbers, the development of airborne doctrine had stopped in 1938. The airborne forces used in Finland were either wiped out or achieved insignificant gains in the overall progress of the battle. They failed for many of the same reasons the American airborne failed in Sicily: general inexperience, unskilled pilots, poor communications and widely dispersed delivery. Yet, unlike the Americans following Sicily, the Soviet High Command lost confidence in the airborne concept and halted airborne operations in Finland, committing its airborne forces as infantry. This set a precedent for its later extensive use of paratroopers as infantrymen in World War II.<sup>43</sup> The Soviets did take advantage of the mobility of their airborne forces during the unopposed

occupation of Romania in June of 1940. In response to the collapse of France in May-June of 1940, three airborne brigades were deployed forward of the advancing ground forces to capture important points and to maintain order.<sup>44</sup>

In the year before Hitler launched his attack against the Soviet Union, there was a major reappraisal of the Soviet Armed Forces at the highest levels. The lessons of the Spanish Civil War, the Finnish campaign and Germany's stunning successes in France and Belgium led to the conclusion that, "modern war . . . called for large armored and airborne forces because they were so mobile."<sup>45</sup> The new Soviet Commissar of Defense, S. K. Timoshenko, reinforced the need for airborne forces when he said:

The experience of the World War II in the West showed that the high tempo and success of an operational offensive were secured by the massive use of tanks, aviation and artillery in cooperation with motorized forces and airborne forces. The development of a tactical penetration into an operational-strategic one was made possible by introduction of mobile forces into the penetration and by operations of airborne forces.<sup>46</sup>

The Soviets rushed to heed Timoshenko's words. The Ministry of Defense established a special airborne administration, taking the airborne forces away from the control of the Red Army air force, and increasing the size of the force from six brigades to five corps, totaling almost 100,000 men. But like the rapid expansion of the American airborne, these forces were undermanned, poorly equipped, inadequately trained and lacked transport aircraft. On 22 June 1941, Operation Barbarossa caught the Soviet airborne forces in the middle of their expansion.<sup>47</sup>

The rush of German successes in the initial months of the war, the lack of transport aircraft and the elite nature of the forces resulted in the Soviet High Command's commitment of these forces as motorized infantry units. They were used to support crumbling units in

key locations and to block deep penetrations of advancing German panzer units. Several other factors also contributed to the use of the airborne as infantry. First, Germany maintained air superiority for much of the war. Second, with the Soviet Union on the defense and in retreat, the opportunity for offensive airborne operations during the first year of the war was very limited. Third, the priority for the use of the transport aircraft early in the war was to evacuate heavy industry to points beyond the Urals. Finally, with such a substantial threat to the very existence of the Soviet Union, the High Command was unwilling to leave a large number of infantrymen out of action until the combat situation favored their use.

Despite the competing requirements for the use of their airborne troops and the significant resources required with their use as an airborne force, the Soviets included airborne forces in their first major counterattack, the Moscow counteroffensive (December 1941 to June 1942). The German drive for Moscow had fallen short and the Germans were exhausted. Their casualties in men and equipment were high. The Soviets were undoubtedly aware of the German condition and anxious to ensure the security of Moscow. The plan was to throw all available forces at the German Army Group Center in an attempt to drive it away from Moscow and destroy it. With the bulk of the ground forces attacking the German army group from the front, an entire Soviet airborne corps was dropped into the army group's rear, near the town of Vyaz'ma, to aid in the encirclement and destruction of the enemy. The operational use of the airborne forces was a bold attempt to follow the prewar prescription for success, offensive deep battle. Unfortunately for the Soviets, the airborne operation failed for several reasons and of the 14,000 men who jumped into Vyaz'ma only 4,000 survived the ordeal.<sup>48</sup>

The failure of the Soviet 4th Airborne Corps at Vyaz'ma was the result of poor planning, insufficient firepower, limited mobility and significant weather constraints. The planning was hasty and incomplete. The planned movement of the aircraft and personnel was confusing at best. Of the 600 aircraft needed to execute the initial brigade airdrop in one lift, only 62 were assigned.<sup>49</sup> The coordination between the airborne force and the main front linkup force was nonexistent. The lack of artillery and heavy weapons substantially diminished the airborne force's striking power. Additionally, the heavy snows (up to three feet deep) and harsh temperatures (-22° to -50°F) significantly affected the foot mobile airborne units and resulted in their encirclement by the more mobile German forces. These German units were given plenty of time to respond to the initial assault, which took six days to complete. The foot mobility and limited firepower of the Soviet airborne thwarted the High Command's ambitious plans and its first operational use of airborne forces ended in disaster.<sup>50</sup>

The Soviets conducted their second and final operational level airborne assault of the war in September 1943 during the Soviet advance to the Dnepr River. Three airborne brigades were ordered to secure a bridgehead over the Dnepr River, south of Kiev, to support the Soviets' crossing of the Dnepr in pursuit of the withdrawing Germans. This operation failed for many of the same reasons the Vyaz'ma operation failed. However, the most significant flaw in the operation was in the Soviets' estimate of the German opposition. While reconnaissance of the objective area three days prior to the operation revealed very little German activity, on the day of the airdrop the airborne force was met by almost five German divisions. Of the 4,575 men that jumped, over 60% were lost. "It is understandable that the Dnepr operation was the Soviets' last major airborne operation. Even compared to the Vyaz'ma

ordeal of 1942, the Dnepr operation is a classic case of how not to conduct an airborne operation."<sup>51</sup>

The Soviets' experiences at both Vyaz'ma and Dnepr revealed the weaknesses of their airborne forces: the shortage of lift aircraft, the inability to deliver the forces accurately and the inability of the light units to compete with the German firepower and mobility. The continued shortage of lift aircraft and manpower ruled out further large-scale airborne operations, whose chances the Soviets rated as only marginal. For the remainder of the war the airborne forces would serve in a role that the Soviet Army was more accustomed and better trained to perform, namely, infantry ground operations.<sup>52</sup>

Although their operational use of airborne forces had ended, the Soviets still used occasional tactical assaults, particularly diversionary airdrops, because those types of airborne missions had proved successful earlier in the war. Throughout the war, the Soviets used tactical and special purpose airborne forces for the following missions: to divert the enemy's attention away from the planned main attack, to disrupt the enemy's withdrawal, to block key enemy supply and/or communications routes, to secure airfields forward of a main assault for follow on airland forces, to reinforce encircled forces, to secure key industrial, military and strategic points forward of exploitation forces, and to raid key enemy facilities such as communication centers or airfields. These operations, generally quite successful, rarely exceeded 500 men in strength and were normally conducted within 100 kilometers of the front lines. For example, on the night of 24 October 1942, forty naval paratroopers raided the German airfield at Maikop. German bombers and fighter aircraft flying from the field were causing severe problems for the Soviets in the Transcaucasus. Within an hour, the force destroyed 22 and damaged

another 20 of the 54 aircraft at the airfield before being driven off by the Germans.<sup>53</sup> As will be discussed later in this paper, the majority of these small tactical airborne operations would now be conducted as air assaults, using helicopters.

In spite of the diminished use of large-scale airdrops, the Soviets still recognized the value of operational airborne operations under the right circumstances. Their Field Regulation of 1944 continued to embrace the theoretical use of airborne forces developed in the 1930s by declaring, "Airborne troops are . . . characterized by a high degree of mobility, powerful automatic armament, ability to appear quickly and suddenly and to conduct battle in the rear of the enemy."<sup>54</sup> After detailing the specific missions of the airborne, the regulation added the important caveat that, "successful employment of airborne troops requires careful preparation and effective cooperation with aviation, partisan detachments and mobile troops."<sup>55</sup> The lessons learned from Vyaz'ma and Dnepr were carefully woven into the new regulation. Although airborne operations from 1944 to the end of the war were very limited, the 1944 regulation captured the essence of their war experiences. During the postwar years, the Soviets would provide the airborne forces with the means to fulfill their future tactical, operational and strategic missions.

## CONCLUSION

This chapter has provided some of the background needed to understand the evolution of airborne forces. There are many reasons for the successful use of airborne forces and many "lessons learned" from the airborne failures. The next chapter will address how the Soviets and the Americans took the same information and developed two completely different airborne forces.



## CHAPTER TWO ENDNOTES

- <sup>1</sup> Liddell B.H. Hart, Strategy (New York: New American Library, 1974), p. 5.
- <sup>2</sup> John Weeks, Assault From the Sky (New York: G.P. Putnam's Sons, 1978), p. 8.
- <sup>3</sup> Edwin P. Hoyt, Airborne (New York: Stein and Day Publishers, 1985), p. 10.
- <sup>4</sup> Weeks, p. 8.
- <sup>5</sup> COL David M. Glantz, The Soviet Airborne Experience (Fort Leavenworth, KS: Combat Studies Institute, Research Survey No. 4, 1987), p. 5.
- <sup>6</sup> Glantz, pp. 4-9.
- <sup>7</sup> Glantz, p. 11.
- <sup>8</sup> Glantz, pp. 1, 17, and 23.
- <sup>9</sup> Hoyt, p. 11.
- <sup>10</sup> Weeks, p. 9.
- <sup>11</sup> Hoyt, p. 11.
- <sup>12</sup> Weeks, p. 9.
- <sup>13</sup> Ibid.
- <sup>14</sup> Ibid., p. 14.
- <sup>15</sup> Ibid., pp. 15-16.
- <sup>16</sup> Maurice A.J. Tugwell, "Day of the Paratroopers," Military Review, March 1977, p. 45.
- <sup>17</sup> Department of the Army Pamphlet No. 20-232, Historical Study: Airborne Operations - A German Appraisal (Washington D.C.: Government Printing Office, Oct. 1951), p. 17.
- <sup>18</sup> LTC Lou Matz, "Airdrop, Is it Still a Viable Tactic?" Airlift Magazine, Spring 1988, p. 5.
- <sup>19</sup> DA Pamphlet No. 20-232, p. 5.
- <sup>20</sup> Vincent J. Esposito, The West Point Atlas of American Wars (New York: Prager Publishers, 1972), p. 22.
- <sup>21</sup> Tugwell, pp. 40 and 46.
- <sup>22</sup> Hoyt, p. 12.
- <sup>23</sup> Ibid., p. 14.

- 24 Weeks, p. 57.
- 25 Ibid., p. 61.
- 26 Esposito, p. 91.
- 27 Weeks, p. 50.
- 28 William B. Breuer, Drop Zone Sicily (Novato CA: Presidio Press, 1983), p. 224.
- 29 Ibid., p. 225.
- 30 Weeks, p. 55.
- 31 Hoyt, pp. 41-47.
- 32 Weeks, p. 64.
- 33 Maurice Tugwell, Airborne to Battle (London: William Kimber and Co., 1971), p. 280.
- 34 Weeks, p. 76.
- 35 Tugwell, Airborne to Battle, p. 282.
- 36 War Department Training Circular Number 113, Employment of Airborne and Troop Carrier Forces (Washington D.C.: Government Printing Office, 9 Oct. 1943), p. 2.
- 37 Tugwell, Airborne to Battle, pp. 206-207.
- 38 James A. Huston, Out of the Blue: U.S. Army Airborne Operations in World War II (West Lafayette, Indiana: Purdue University Press, 1972), p. 166. Referencing a personal letter from General Eisenhower to General Marshall, dated 20 September 1943.
- 39 Weeks, pp. 85-91.
- 40 Tugwell, Airborne to Battle, pp. 220 and 225-226.
- 41 Weeks, pp. 97-109.
- 42 Tugwell, Airborne to Battle, p. 272.
- 43 Asher Lee, The Soviet Air Force (New York: The John Day Co., 1962), pp. 99-100.
- 44 Glantz, p. 19.
- 45 Lee, p. 100.
- 46 Glantz, pp. 20-21.
- 47 Ibid., pp. 19-23.
- 48 Ibid., pp. 23-91.

49 General I. I. Lisov, Parachutists: Airborne Landing (Moscow: Military Publishing House, 1968), p. 87.

50 Glantz, pp. 23-91.

51 Ibid., p. 109.

52 Ibid., pp. 33 and 111.

53 Ibid., pp. 113 and 133.

54 Ibid., pp. 35-36. (Translated from 1944 Field Regulations of the Red Army.)

55 Ibid.

## CHAPTER THREE

### U.S. AND SOVIET POSTWAR AIRBORNE DEVELOPMENT

An airborne force transported to the deep rear of the enemy must be able to conduct military operations without counting on linking up with the ground troops. . . . To do this, the troops which constitute the force need the same qualities which are inherent in the troops attacking from the front: a high degree of maneuverability and the possession of weapons, equipment and material means necessary to conduct long-range [strategic] military operations. . . . Only in this way will the dropping and landing of large numbers of airborne troops be of significance. It will justify the expenditure of the vast amount of forces and means which are needed to ensure landing.

Colonel I. I. Andrukhov and Colonel V. Bulatnikov (1966)<sup>1</sup>

### INTRODUCTION

During the immediate postwar years, America celebrated victory by demobilizing their military while the Soviets concentrated their analytical energies on building an armed force that could guarantee their security for future generations. They would study the historical lessons of the war and then proceed to build for the future.<sup>2</sup> Following their "demobilization", the Soviets still had as many as 175 division-sized units and had increased the size of their mechanized forces from 39 to 65 divisions.<sup>3</sup> They were willing to pay, whatever the price, to protect themselves from another attack from the west. The Soviets, in short, were committed to the modernization of their military and with it their airborne forces. This chapter will address the divergent paths taken by the Soviet Union and the U.S., after World War II, in the development of their airborne doctrine, organization and equipment.

## THE POSTWAR YEARS - SOVIET AIRBORNE DEVELOPMENT (1946 - 1953)

Immediately following World War II, the Soviet Union reformed its military. The theories, practices and organizations that contributed most to their victory in World War II were emphasized. Mechanized armies of armored-heavy maneuver units emerged. These powerful mobile forces received the bulk of the attention and the resources. However, the Soviets also maintained a significant airborne force, of as many as ten divisions, containing a mixture of both airborne and glider troops. Additionally, Soviet military theorists intensely studied the war experiences in an effort to define the precise missions the airborne forces should perform. They identified tactical, operational and strategic missions which included the disruption of enemy mobilization and the seizure of industrial regions, islands and beaches. Two factors, however, prevented the airborne forces from attaining a primary status in the new Soviet force structure. The first was Stalin's severe reservations about the survivability of airborne forces in modern mechanized combat. The ghosts of the operational airborne failures at Vyaz'ma and Dnepr were still too vivid. The second, was the lack of technological assets, specifically inadequate lift aircraft, insufficient heavy weapons and limited ground mobility.<sup>4</sup>

The capabilities and availability of lift aircraft were especially restrictive to the development of the airborne forces. The air transport of the 1940s could only lift personnel and light weapons or vehicles. Because of these lift limitations, the airborne forces had to stay light. So, despite the concerted effort to improve the airborne forces' weaponry, the rearmament of the airborne consisted only of improved anti-tank guns, 120-mm mortars, recoilless rifles and some light vehicles. The parachute battalions still advanced and attacked on foot with limited organic fire support. This problem of inadequate lift

aircraft would not be soon fixed. Soviet aircraft construction emphasized creating long-range bomber aviation and air defense aircraft. Nevertheless, as resources became available, a number of aviation design bureaus worked to develop an improved transport aircraft.<sup>5</sup> Their efforts would eventually result in the production of the Soviets first long-range assault transport aircraft, the Antonov AN-8, but not until 1956.

The requirement to stay light also limited the employment doctrine of the airborne forces. The weaponry available and the air delivery capability of the Air Force determined the airborne forces' potential combat role. Until technology could respond with a significant increase in aircraft lift capability, the airborne missions could not change much from those assigned in World War II. Essentially, the airborne forces were limited to seizing and holding terrain until linkup with ground forces could be accomplished. Their missions remained passive because after landing, paratroopers lacked the mobility and heavy mobile firepower to attack.<sup>6</sup> Despite these limitations, airborne operations remained an essential part of the Soviet offensive theory. Having identified the limitations, the Soviets would work to correct them.

#### THE NUCLEAR ERA - SOVIET AIRBORNE DEVELOPMENT (1953 - 1968)

In the second postwar period of Soviet airborne development, nuclear warfare dominated Soviet thought. This period extends roughly from the time of Stalin's death (1953) to the end of the sixties, when the Soviet pendulum swung back toward non-nuclear conventional war. Based on the premise that a future war would begin with a nuclear exchange, the Soviets shifted from the large concentrations of forces used in World War II to smaller, more mobile forces. The smaller forces

would be less of a target in a nuclear environment, while mobile forces would be better able to rapidly exploit the effects of nuclear weapons use. They proceeded to mechanize and motorize all elements of the force, tailoring them to fight and survive in an atomic environment.<sup>7</sup> Their weapons development resulted in a new generation of tanks (T-55 and T-62), artillery, air defense artillery and vehicles. Simultaneously, Soviet theorists began to tailor operational airborne employment concepts to this new vision of nuclear war.

Accepting the premise that general war would likely begin with a nuclear exchange, the Soviets greatly expanded the mission of their airborne forces. They perceived a gap in the time between the execution of a nuclear strike and the time when the ground units could reach the target area. Airborne forces would be used to close this gap. The rapid insertion of airborne forces, immediately following nuclear strikes, would be used either to seize and hold objectives or to quickly destroy enemy forces remaining in the target area. With this fundamental change in mission, the airborne forces would have to be more lethal, mobile and survivable than they were in World War II.

Recognizing the fact that the airborne potential for increased mobility and survivability was limited by the lack of adequate transport aircraft, the Soviet Military Transport Aviation (VTA) created the first true assault aircraft, the Antonov AN-8 Camp. The AN-8 Camp, fielded in 1956, was equipped with a large rear-loading door and tail gun turret. The aircraft was estimated to have a combat range of 2,000 miles and capable of carrying about 50 troops.<sup>8</sup> The airlift capability of the VTA was further enhanced by the fielding of the AN-12 Cub in 1961 and the AN-22 Cock in 1965. The AN-12 Cub, similar in size and capacity to the U.S. C-130 Hercules, can transport over 44,000 pounds of equipment or 80 paratroopers and is still in service. The AN-22 Cock was designed

primarily to transport outsized cargo and, with its 176,000 pound payload capacity, has substantially increased the airlift capability of the VTA.<sup>9</sup> With the development of these transport aircraft, the severe equipment weight limitations, imposed on the airborne since their inception, were greatly minimized. The Soviets could now focus on the development of equipment required by the airborne to accomplish their expanded mission: to rapidly exploit the effects of nuclear strikes.

It is important to understand that the Soviet development of airborne forces was directly shaped and influenced by detailed analysis of their historical experience. Using the results of this detailed historical analysis, and "based on their perceptions of future war, the Soviets designed the force structure and equipment necessary to implement their ideas."<sup>10</sup> An indication of where the Soviets were going with their airborne forces appeared in the 1966 issue of Military Thought which stated, "troops which constitute the [airborne] force need the same qualities which are inherent in the troops attacking from the front: a high degree of maneuverability and the possession of all types of weapons, equipment and material means."<sup>11</sup> It is here that the Soviet evolution of their airborne forces has differed most from the U.S. For all the airborne forces dropped during World War II, "maneuver was largely at the speed of the infantryman, [As it still is in the U.S. however,] Soviet recognition of this inherent weakness has been the key to the further development of their [airborne] forces."<sup>12</sup> The Soviet concept of the airborne assault has the landing of the force as simply the beginning of the operation. Secondary mobility, the ability of the assault troops to maneuver after the airdrop, is the essential capability that will justify the significant expenditure of resources required to execute an airborne operation.<sup>13</sup>



The Soviets' earliest attempt to solve the secondary mobility problem of the airborne came with the introduction of the ASU-57 assault gun in 1957. This vehicle, designed "specifically" for the airborne, has a 57-mm gun and a troop compartment aft for six personnel. Limited secondary mobility for the airborne infantry troops was now possible. A few years later the ASU-85 assault gun, again designed specifically for the airborne, was fielded. While primarily designed to provide the airborne forces with an antitank capability, the ASU-85 also enhanced their secondary mobility as paratroopers were routinely transported on the outside of the hull.<sup>14</sup> These two systems, the ASU-57 and the ASU-85, were organized into assault-gun battalions in the early 1960s, one in each airborne division. Along with the additional firepower provided by the RPU-16 towed multiple rocket launcher and the air defense provided by the ZU-23, the airborne division was in much better shape to accomplish its mission of rapidly exploiting nuclear strikes. Although, by the late 1960s the Soviets had begun to reconsider their "single option" of fighting a nuclear war, it was clear that Soviet thought regarding operational airborne employment was transitioning from passive, static missions to concepts based on maneuver.

#### CONTEMPORARY SOVIET AIRBORNE DEVELOPMENT (1968 - 1988)

As noted above, with the appearance of nuclear weapons, the importance of the airborne troops to the Soviets significantly increased. The unique ability of these troops to rapidly exploit the results of nuclear strikes motivated the Soviets to commit tremendous amounts of research, time and money into the modernization of their airborne forces. However, following Khrushchev's fall from power, the Soviets reassessed Khrushchev's "single-option" nuclear strategy and decided that conventional war without nuclear weapons use was possible.

Starting in the early 1970s, the Soviets prepared themselves for a conventional war with the possibility of nuclear escalation, the equivalent of war in a "nuclear-scared" environment. This was the Soviets' version of the "flexible response."<sup>15</sup> The switch from nuclear to conventional operations had serious implications for the Soviet airborne forces. The airborne troops continue to have, as an important mission, the destruction of enemy nuclear resources. However, the Soviets believed that without the use of nuclear weapons to suppress enemy air defenses and disrupt the enemy's mobile reserves, an airborne operation onto a well defended objective would be impossible.<sup>16</sup>

With the change of strategy toward conventional war, the Soviets determined that their conventional forces, lightened to permit the rapid exploitation of nuclear strikes, needed to be strengthened. The new emphasis produced a surge in technology as new equipment was fielded to increase the combat power of the conventional units. New generations of tanks, artillery, rockets, missiles and a true infantry fighting vehicle (the BMP) appeared. The expanding ground forces grew in size and, although still tank heavy, reflected the combined arms balance necessary for success in a conventional war. All divisions grew in manpower and mobility with mechanized infantry, artillery and tank improvements.<sup>17</sup> The conventional war environment also surfaced a new Soviet concern, the need for depth. The airborne forces could provide the Soviets this deep attack capability, along with the newly formed forward detachments and operational maneuver groups. Large-scale deep strike airborne operations, of operational or strategic significance, would now be available for use in a theater offensive.

For the theorists, the primary concern for the airborne forces was the issue of survivability in a more lethal environment, especially without the benefit of the support of nuclear weapons.<sup>18</sup> Without the

nuclear weapons to suppress the air defenses and interdict the enemy's mobile reserves, the ability of the airborne to accomplish their mission was questionable. Furthermore, the expanded role of the airborne also put less emphasis on the requirement for a quick linkup with a ground force at some point after landing, further risking their survivability. It was clear that to accomplish their expanded mission, the airborne forces required greater firepower, protection and mobility.

Hereafter, drops would have to be made in weakly held or vacant sectors of the enemy rear, with a quick overland strike against the target. Without fuller mechanization of these forces these tactics would be impractical. In addition, large static formations of airborne troops would make a tempting target for enemy nuclear forces. To survive, the [airborne forces] would have to remain dispersed and mobile, concentrating only for the assault, reinforcing the need for a mechanized airborne division.<sup>19</sup>

The requirement to react to the enemy's armored, mobile counterattack forces, further detailed the need for heavier antiarmor firepower and equivalent mobility in the airborne forces. These collective requirements led to the development of the BMD (*Boevaia Mashina Desantnaia* - landing combat vehicle), an airborne infantry fighting vehicle, designed specifically for the airborne forces. The BMD may be the most important improvement of airborne equipment and armament in the history of the airborne.

The BMD, tested in 1970 and revealed to the public in 1973, is an armored, amphibious vehicle capable of being airdropped by multi-parachute or parachute retro-rocket system. It was designed to combine the antitank capability of the ASU-85 with the troop transport capability of the ASU-57, while providing improved armor protection and mobility. The BMD addresses precisely those weaknesses the Soviets perceived in their historical airborne experiences. It weighs 8 tons

and was initially armed with a 73-mm smoothbore gun, a Sagger antitank guided missile and three machine guns (two bow-mounted and one coaxial). It carries an airborne squad of up to seven men, counting the driver, and has a cruising range of 320 kilometers.<sup>20</sup> The Soviets have been quite specific about the importance of the BMD. In 1977 Army General V.F. Margelov noted how the BMDs "greatly increased the maneuver capabilities of units on the battlefield and opened broad possibilities for the full mechanization of the force"<sup>21</sup> From the Soviets' view the BMD radically changed the nature of airborne operations. The BMD allows airborne battalions to drop on several smaller drop zones, widely separated and away from their objective. These battalions can then assemble, as a regiment or even as a division, away from the objective, greatly increasing their security and survivability.<sup>22</sup> The forces could even attack the objective simultaneously, from several different directions. Initially, a company of 14 BMDs was attached to every rifle battalion, providing mobility to one-third of the division's rifle squads<sup>23</sup>. However, by 1980, the Soviets had decided that a one-third mobile airborne division was still two-thirds foot mobile and went to the full mechanization of their airborne divisions. The result is an airborne division clearly more comparable to a mechanized or light armored unit than to an infantry division.

With the increase in their secondary mobility the Soviets also worked to increase the firepower of their airborne forces. Besides the significant increase in firepower that accompanied the addition of the 348 BMDs per division and their mounted weapon systems, the Soviets have also modernized the rest of their combined arms team. Several variants of the BMD have had their AT-3 Sagger replaced by the AT-4 Spigot or AT-5 Spandrel, and a limited number have also had their 73-mm gun replaced by the long-barreled 2A42 30-mm cannon.<sup>24</sup> In the artillery,

the M-30 122-mm towed howitzer was replaced by the lighter, more powerful D-30 towed howitzer with a longer range (15,300 kilometers) and the ability to engage tanks in direct fire with HEAT rounds.<sup>25</sup> The M1975, 122-mm multiple rocket launcher, mounted on a GAZ-66 light truck, has replaced the old towed 140-mm system. However, the most recent change to the airborne artillery has come with the introduction of the 2S9, a 120-mm self propelled howitzer, mounted on a BMD chassis and replacing the M-1943 120-mm mortar in the airborne battalions. The 2S9 is also capable of replacing the D-30 122-mm towed howitzer in the artillery regiments, and the ASU-85 assault gun in the assault gun battalion.<sup>26</sup> The ten kilometer range and antitank capability of the 2S9 provides a quantum leap in capability for the airborne division.<sup>27</sup> The significance of this trend toward self-propelled mobility is that by eliminating many of the prime movers, the Soviet airborne is benefiting from a substantial increase in firepower without increasing their overall airlift requirements.<sup>28</sup>

Concurrent with the evolution of the airborne forces, the Soviets worked extensively on the development of helicopter operations. Study and experience highlighted the vulnerability of forces parachuted into combat. So, as early as the 1950s, the helicopter was considered as an alternate means of insertion. Experiments with helicopters began in the mid-1950s and with the added lift provided by the Yak-24 Horse, the MI-6 Hook and the MI-10 Harke in the late 1950s, the helicopter seemed better suited to perform some of the missions previously performed by the airborne troops.<sup>29</sup> By 1960, tactical experimentation and the impressive increase in the Soviet helicopters' lift capabilities convinced the Soviets of the efficiency of air assault operations. Exercises involving helicopter-lifted forces increased. Air assault forces were used to maintain the tempo of the advance and could be used

to quickly cross water obstacles, defiles or to seize key terrain behind enemy lines. Their use in the 1967 Dnepr exercise included, for the first time, the use of U.S. Vietnam style door guns and rocket pods for clearing the landing zone.<sup>30</sup> The addition of two new helicopters to the Soviet inventory in the 1970s, further confirmed their commitment to helicopter operations. The MI-8 Hip troop transport and the MI-24 Hind attack helicopter provided both an increased lift capability and the accompanying fire support needed for successful air assault operations.

Until the late 1960s, Soviet air assault theory stated that airborne troops, by virtue of their training in operations behind the enemy lines, were best qualified for helicopter assault operations. However, in the 1970s the Soviets switched to the view that ordinary motor rifle troops could be used as air assault forces instead of airborne troops.<sup>31</sup> This probably reflects the Soviets' analysis of the American experience with large-scale air assault operations in Vietnam. Also in the 1970s, the Soviets introduced a new unit into their force structure - the air assault brigade. These specialized air assault brigades, created as front level assets, contain both airborne and air assault units and are capable of both tactical and operational level missions.<sup>32</sup> The Soviets' current air assault concepts provide for the use of helicopter operations, in lieu of airborne operations, at the tactical level and have helped focus their airborne development toward the operational and strategic level missions that only airborne forces are capable of performing.

However, it took the continued modernization of the VTA to enable the airborne forces to project their power at the operational and strategic level. The Soviet airlift modernization efforts continued with the fielding of the IL-76 Candid in the early 1970s and the AN-24 Condor in the mid-1980s. The IL-76 Candid is similar in size to the

U.S. C-141 StarLifter and capable of carrying three BMDs or 125 paratroops. The AN-124 Condor is capable of airlifting over 330,000 pounds (compared to the U.S.'s C-5 Galaxy payload of 290,000 pounds) or 320 paratroops (compared to 155 paratroops in the C-141 StarLifter). Finally, the newest Soviet airlifter, the AN-225 Mechta, fielded in 1989, is the largest aircraft ever made, with a payload of over 500,000 pounds. Additionally, the VTA continues to improve its airlift capability by producing over 50 new airlift aircraft each year, mostly IL-76 Candids. In contrast, the U.S. has produced less than 50 airlift aircraft in the last four years and is projected to produce less than 50 airlift aircraft in the next four years (assuming the C-17 is funded and fielded as planned).<sup>33</sup>

Not only have the Soviets modernized their airborne forces and their airlift forces, but they have also demonstrated the willingness to commit these strategic forces, first in Czechoslovakia in 1968 and then in Afghanistan in 1979. The Soviet invasion of Czechoslovakia highlighted the Soviets' potential for large-scale airborne troop employment in a force projection role. The airborne division, which spearheaded this intervention, was airlanded at the Prague airport following the neutralization of the Czechoslovakian attack aircraft and the tower by a small airborne force. Once on the ground, the airborne troops moved quickly to seize government buildings, broadcast facilities and other key points around the city. A Soviet airborne division was also used to spearhead the invasion of Afghanistan. This time a BMD-equipped airborne force of division-size landed in Kabul and moved quickly to seize key points in the city. Kabul was secured in one day.<sup>34</sup> Although able to airland in both cases, these forces were well prepared, and equipped to conduct a forced entry if required.

The Soviet airborne is a credible, diverse and survivable force whose capabilities add yet another facet to the concept of combined arms operations. Their existence is the result of years of study, extensive testing and the significant commitment of resources.<sup>35</sup> Throughout the 1970s and into the 1980s the Soviets continued their study of warfare with the analysis of contemporary warfare (Vietnam, 1973 Arab-Israeli War and the Falklands War) and noted the impact of new weaponry on combat. In conjunction with their study and analysis, the Soviets conducted a series of major exercises (Dnepr - 1967, Dvina - 1970, Yug - 1971, Zapid - 1981 and others) to test concepts, force designs and new equipment.<sup>36</sup> By the mid-1980s, the Soviets had fielded the airborne force that the visionaries of the 1930s dreamed of - namely, a full-fledged vertical dimension of deep battle. The Soviet airborne forces are structured and equipped to perform a multitude of missions in support of military operations at any level of war. In the words of a Soviet General of the Army, V. Margelov:

Now airborne forces are equipped with the most perfect means of waging combat. Perhaps in no other type of force is there concentrated such a variety of arms and equipment. Soviet airborne forces can appear in the enemy rear, having at their disposal all that is essential for the conduct of battle. They are also able to perform large strategic missions in contemporary combat.<sup>37</sup>

#### THE POSTWAR YEARS - U.S. DOCTRINE/AIRBORNE DEVELOPMENT - INTRODUCTION

Unlike the Soviet development of airborne forces, the U.S. has progressed very little since World War II. The progress has been incremental - better airplanes, better cargo parachutes, better weapons systems. But essentially, the same missions are being accomplished in the same manner they were accomplished in 1944. Rather than having large numbers of paratroopers airdrop to seize and secure tactical



objectives they now seize and secure airfields. And instead of holding the terrain for the advancing ground forces they hold the airfield for follow-on airland forces. On the other hand, since World War II there has been a significant increase in the mechanization of the U.S. general purpose forces. It is often said that the U.S. airborne forces of the 1980s are far superior to the airborne forces of World War II. This may be true in an absolute sense, since there are certainly more potent weapons in the airborne division now than in 1944. However, when compared with the incredible development, in the firepower and mobility, of the 1944 standard infantry division as it transformed into the current mechanized infantry division, the airborne division has progressed very little.<sup>38</sup> Significant increases in firepower and mobility have also occurred in most other armies of the World. For example, following World War II the Soviet combat forces were less than 10% mechanized, now they are 100% mechanized.<sup>39</sup> Additionally, the trend toward firepower and mobility is rapidly spreading to many of the Third World countries. So why has the U.S. failed to modernize their airborne forces? The modernization of the U.S. airborne forces was stalled by the limited lift capability of the World War II aircraft; put on the back burner by the U.S. monopoly of nuclear weapons and the desire to spend very little on the other components of defense; postponed by the insurgency warfare of Vietnam; and finally, was overlooked by the Army's fixation on Central Europe.

#### THE NUCLEAR ERA - U.S. DOCTRINE/AIRBORNE DEVELOPMENT (1945 - 1960)

Seven times since 1775 the U.S. had begun wars with an inadequate Army, built a fighting force in a race against time and emerged victorious. After each war, the military establishment was dismantled with as much agility as it was increased and with as little regard for the obvious lessons learned.<sup>40</sup>

The U.S. Army was reduced almost 90%, from a fighting force of almost eight million men in 1945 to 680,000 ground troops 300,000 airman by mid-1946.<sup>41</sup> By 1948 the Army was down to 525,000 men and only 10 skeleton divisions, six of these divisions were committed to occupation duties in either Germany or Japan. The conservatives in the military never liked the airborne concept and as part of the postwar demobilization all airborne units were either disbanded or redesignated as regular army units, with the exception of the 187th Airborne Infantry Regiment. The American atomic monopoly seemed to provide the perfect response to any threat and many Americans questioned the need for large ground forces. The assumption was that nuclear weapons could provide a cheap and effective substitute for large ground, naval and air forces.<sup>42</sup> America's "massive retaliation" policy would hit its first snag when, on 25 June 1950, thousands of North Korean soldiers swept south across the 38th parallel into South Korea.

According to General Matthew B. Ridgway, who served as the commander of the Eighth Army in Korea, the Army was in a state of "shameful readiness" when the Korean War began. All American planning had assumed that the next war would be global and according to General Ridgway, "the concept of limited war never entered our councils."<sup>43</sup> American conventional forces were not ready to fight, as demonstrated by the well known story of Task Force (TF) Smith, a battalion from the 24th Infantry Division on occupation duty in Japan. TF Smith was hastily sent into battle in Korea with outdated equipment only to get overrun and lose over half its men in seven hours. The failure of TF Smith was a result of a misguided defense policy that underfunded an army for the missions that it would be required to undertake.<sup>44</sup> The failure to fund a viable airborne force as a strategic reserve is another example of the shortsightedness of the Defense Department. As one historian put it,

"Had the U.S. forces been more alert and prepared for the North Korean invasion that summer, paratroops might well have stopped the drive against Seoul."<sup>45</sup> As it was, the airborne played but a small role in the Korean War. The 187th Airborne Regimental Combat Team (RCT) conducted two tactical airborne operations both designed to cut off retreating enemy forces and to linkup with advancing friendly forces. The first, on 20 October 1950, in the vicinity of the North Korean towns of Sukchon and Sunchon, came too late and failed to cut off any sizable part of the North Korean forces. They did manage to capture over 3,800 North Koreans. The second airborne operation, on 23 March 1951 near the South Korean town of Munsan-Ni, was another conservative use of the airborne forces and the 187th Airborne RCT linked-up with the United Nations ground forces that same day. Like the airborne forces in World War II, the 187th Airborne RCT was also used in Korea to fight as a regular infantry regiment as required.

Korea brought about many changes to the airborne community. First, the XVIII Airborne Corps was reactivated and the 82nd Infantry Division redesignated as an Airborne Infantry Division. Second, there was finally an improvement in airlift aircraft with the introduction of new C-119 Flying Boxcars. The C-119, which was replacing the C-47, significantly increased the airborne's airdrop capability, by having a rear ramp rather than a side door for equipment airdrop and by having a paratroop capacity of 46, versus 20 with the C-47. However, the higher airdrop speeds of the C-119 made the T-7 parachute dangerous, so the T-10 parachute was developed by quartermaster researchers and adopted in 1953.<sup>46</sup> (This parachute, with an updated harness, anti-inversion net and expanded pocket bands, is still in use today and there is no replacement parachute expected in the near future.) Finally, the most significant development to come out of the Korean War was the

rediscovery of the helicopter. Helicopters were actually used during the last two years of World War II, primarily for administrative purposes. Unfortunately, with the postwar reorganization of the War Department, the Army agreed to procure all its air vehicles from the newly formed Air Force. The Air Force had but one mission (on which they would commit scarce research and development funds), to deliver nuclear weapons. So, when asked by the Army to continue the development of the helicopter the Air Force responded, "The helicopter is aerodynamically unsound . . . no matter what [you, the Army] says, I know [you] do not need any."<sup>47</sup> Despite the Air Force's parochialism, helicopters would soon become a dominant force in the military, thanks primarily to the U.S. Marines who conducted concentrated experimentation with helicopters in the early 1950s.

The success of the Army in the Korean War caused a temporary increase in the size and the budget of the Army. But, following the Korean War, U.S. general purpose forces were allowed to quickly atrophy to a point where, by 1959, only 11 of the Army's 14 divisions were regarded as combat ready. At no time during the period 1945 - 1960 were the public, the Congress, or the President prepared to make the fiscal sacrifices necessary to provide the level of general purpose forces commensurate with the burgeoning U.S. defense commitments around the world. There was continued reliance on nuclear weapons and strategic air power at the expense of the conventional forces. Even after experiencing the limitations of the "massive retaliation" policy in Korea or witnessing the failure of the policy to deter communism in peripheral areas like French Indochina, the policy stood.<sup>48</sup> In order to justify its existence and mission in a "massive retaliation" environment the Army had to develop a doctrine and an organization that would allow

ground forces to operate on a nuclear battlefield. The result was the "Pentomic Division".

The concept for combat in a nuclear environment would have a combat zone vastly larger in width and depth than previous wars. The larger combat zone would require many more ground troops. The tactical units had to be sufficiently small, so they would not present a lucrative nuclear target; combined arms, so they could defend themselves when isolated; sufficiently self-supporting, so they could fight without long logistical tails; and streamlined in command structure, so they could speed passage of information and decisions.<sup>49</sup> The result was a Pentomic Division that consisted of five battle groups, each smaller than a regiment but larger than a battalion. Like the Soviets, when confronted with the nuclear battlefield, the U.S. looked to a lighter, more mobile force structure. However, unlike the Soviets, who mechanized or motorized all elements of their force and introduced a more streamlined tank army, the U.S. Army had to remain light enough to deploy rapidly to any trouble spot in the world. These strategic considerations greatly influenced the force structure. With the exception of the tanks, a division's equipment was supposed to be transportable by long-range aircraft. This emerging concept of rapid deployment of ground forces throughout the world to limited engagements made the late 1950s the golden age of airborne units.<sup>50</sup>

By 1959 the Army had a radically new structure with the Pentomic Divisions. However, this concept was jeopardized by additional reductions in the size of the Army, from 1,026,000 soldiers in 1956 to 862,000 in 1959. The Eisenhower administration placed an even greater emphasis on strategic and tactical nuclear weapons at the cost of reduced conventional forces, even though the Army's leaders believed an atomic battlefield required more men and equipment because of its

greater dimensions.<sup>51</sup> In the final analysis, the Pentomic Division failed. The Army reacted to a strategic concept without considering their ability to technically execute the doctrine. "In short, the technology lagged behind the doctrine, and strategic concepts raced ahead of tactical [and budgetary] realities"<sup>52</sup>

#### FLEXIBLE RESPONSE - U.S. DOCTRINE/AIRBORNE DEVELOPMENT (1960 - 1973)

During the late 1950s the likelihood that a conflict would be nonnuclear, continued to increase. With the arrival of the Kennedy administration, in 1961, came the new concept of "Flexible Response". Despite the Army's original purpose, the Pentomic division was primarily oriented toward nuclear warfare. Now the Army needed a new structure capable of dealing with conflict across the entire spectrum of warfare, from low intensity guerrilla wars to fully mechanized and even nuclear warfare. The result was the ROAD (Reorganization Objectives Army Division).<sup>53</sup> The basic feature of the ROAD division was a common division base to which a varying number of maneuver battalions were attached. The division could then "task organize" and tailor the unit structure at any level. The new division also included three brigade headquarters which primarily had a tactical function and could control from two to five maneuver battalions. While the ROAD division added another artillery battalion to the division and doubled the division's helicopters by adding an aviation battalion, the biggest change came with the introduction of fully mechanized infantry units.<sup>54</sup> By the mid-1960s the ROAD division concept was implemented and even the airborne divisions were built on the common division base. On 29 April 1965, the recently ROAD reorganized 82nd Airborne Division deployed, as America's strategic force, into the Dominican Republic.

Two battalion combat teams from the 3rd Brigade of the 82nd Airborne Division were committed into the Dominican Republic, as part of a Joint Task Force, to establish order in the strife ridden country. 3rd Brigade's plan was to seize and secure the San Isidro airfield, expand the airhead westward and stand ready to assist in the evacuation of American personnel. While enroute to an intermediate staging base at Ramey Air Force Base (AFB), Puerto Rico, General York, Commander of the 82nd Airborne Division, was advised of a change in plans. Of the 144 C-130 aircraft in the initial assault force, 79 aircraft were directed to bypass the intermediate staging base and airland directly into the Dominican Republic, at the San Isidro airfield, and conduct "stability operations". Operation Power Pack eventually required all nine battalions and a cavalry squadron of the 82nd Airborne Division and the bulk of the 4th MEB (Marine Expeditionary Brigade). As would be expected with the first strategic employment of the U.S. airborne forces, there were many problems. Yet, despite the frustrations and problems the Joint Task Force succeeded in the stability operation, order was restored and a democratic government reestablished.<sup>55</sup>

It was also in 1965 that the U.S. started its commitment of ground forces into South Vietnam, although American "advisors" had been involved in Vietnam since 1950. Because of the strategic and political considerations, the ground strategy remained that of a gigantic mobile defense. From 1965 until 1968, the U.S. units carried the brunt of the major fighting while the South Vietnamese troops emphasized pacification duties. After 1968, the U.S. gradually turned over the combat missions to the South Vietnamese, as part of the move toward U.S. troop withdrawal. Due to the small-unit tactics of the Vietcong (Vietnamese belonging to the National Liberation Front of South Vietnam) and the heavy vegetation and broken terrain, the war was characterized by

tactical operations of brigade-sized units or smaller. Some large-scale operations did occur both to counter North Vietnamese Regular forces and to provide a protective shield for the small-unit operations.<sup>56</sup> The one major parachute landing of the war occurred on 22 February 1967 when the 2nd Battalion, 503rd Parachute Infantry Regiment, operating as part of the 173rd Airborne Brigade, participated in Operation Junction City. The operation to quickly surround enemy forces in the area was a success but large-scale parachute operations would not be used again in the war.<sup>57</sup>

The use of airborne operations in Vietnam was minimal for two main reasons. First, the airborne concept of cutting off enemy forces or seizing key terrain did not work in a war that was nonterritorial. And second, by 1965 the helicopter was a large-scale tactical troop transport that revolutionized the concept of vertical envelopment. From 1963 to 1965 the Defense Department conducted intensive studies of airmobile organizations, equipment and tactics using the 11th Air Assault Division (Test). The testing, conducted by a special investigatory board, under Major General Hamilton H. Howze strongly favored development and use of the helicopter as a battlefield vehicle and recommended the formation of "Air Mobile" divisions. The recommendations of the Howze Board were implemented and, on 1 July 1965, the 11th Air Assault Division (Test) became the 1st Cavalry Division (Airmobile) and deployed to Vietnam.<sup>58</sup> In Vietnam, the Army fully developed the air mobile concept of operations. In the low to mid-intensity environment of Southeast Asia, the helicopter added significantly to the tactical mobility and firepower of the infantry units. Airmobile concepts and tactics dominated the development of infantry tactics and organization and by the end of the war the U.S. had converted the 101st Airborne Division to an air assault division.<sup>59</sup>



In addition to the increased use of helicopters in Vietnam, mechanized forces added significantly to the fighting capability of the ground units. Although there were initially some reservations about the use of mechanized forces in the heavily vegetated and broken terrain of South Vietnam, once committed they more than proved their worth. The mechanized units possessed an overwhelming firepower, armored protection and significant mobility. This firepower and capability for rapid reaction enabled them to control twice as much terrain as a regular infantry battalion. When used to reinforce infantry maneuver units, they added a significant degree of offensive assault capability and mobility. Additionally, the movement by the mechanized units often forced the enemy to react, exposing him to discovery by aerial or ground observers or ambushes. On occasion, tanks were even used in a "jungle busting" role and could often move more rapidly in such terrain than foot soldiers.<sup>60</sup> Unfortunately, Vietnam focused the Army's attention on small-unit counterinsurgency operations where U.S. forces enjoyed massive superiority over enemy forces. With the withdrawal of all U.S. troops from Vietnam by 1973, the Army was forced to refocus on the conventional-nuclear battlefield of Europe where the Soviets enjoyed a significant conventional forces superiority.<sup>61</sup>

#### CONTEMPORARY U.S. DOCTRINE/AIRBORNE DEVELOPMENT (1973 - 1988)

As the U.S. shifted its focus from South Vietnam to Europe, the unexpected lethality and violence of modern combat became abundantly apparent in the 1973 Middle East War. "The startling violence and consuming nature of that war served to accelerate the transition from the previous focus on counterinsurgency to the new focus on conventional war."<sup>62</sup> An Army study of the 1973 War concluded that the combined arms team was the most lethal instrument on the battlefield.<sup>63</sup> This combined

arms approach to modern combat was the same approach the Soviets had made some six years earlier, when they shifted their military strategy from that of a nuclear "single option" approach, to a conventional warfare approach, with nuclear escalation possible. While the Soviets had substantially modernized their forces, the U.S.' preoccupation with Vietnam cost the Army a decade of modernization.<sup>64</sup> Additionally, the doctrine for employing mechanized forces in the Army had only changed slightly since 1945. Given the technological advancements in firepower and mobility, there was a clear need for an improved Army doctrine. The Army's doctrines of "active defense" in 1976 and "AirLand Battle" in 1982 would answer the call for updated doctrine. However, the doctrine was designed primarily to deal with the Soviet's mid- to high-intensity threat in Europe.<sup>65</sup>

Again, as it had for World War II, Korea, and Vietnam, the Army would lurch to respond to their number one threat. That threat was the recently modernized conventional forces of the Soviet Union. But to respond to any threat, the Army needed funds and the post-Vietnam era was not a good time for financing a conventional force modernization. A by product of the Vietnam War was a strong anti-military attitude in Congress. The fact is that Presidents Nixon and Ford presided over the dismantling of the American military machine. As with the post-World War II demobilization, the bulk of the post-Vietnam defense spending went to strategic systems, such as the B-1 bomber, the Trident submarine and the Cruise missile, at the expense of the conventional forces.<sup>66</sup> The Carter administration of the late 1970s was not much better, and until the Reagan Administration of the 1980s, the U.S. military continued to fall further behind the Soviets strategically and conventionally.

As the military spent the better part of the 1970s and 1980s trying to catch up with the Soviets conventionally, the focus remained on Europe and the airborne remained a low priority. The defensive orientation of the European-type battlefield has given the Army its direction in the development of equipment since the Korean War and has exacerbated the problem of airborne equipment development. The addition of the armored personnel carrier, the improvements in the tank (agility and mobility), the creation of mechanized artillery and the adaptation of the helicopter added significantly to the Army's tactical and operational mobility. At the same time, there was a tremendous increase in the firepower of these systems, in an effort to make up for the disparity in the numbers of conventional forces in Europe. Unfortunately, these improvements in tactical mobility and long-range, lethal firepower came at the expense of strategic mobility. U.S. forces became progressively heavier and more difficult to transport.<sup>67</sup> Unlike the Soviets' airborne forces, the U.S. airborne forces were not considered essential to successful combined arms operations in Europe, primarily because they were still a light, foot mobile force. So, with the limited funds available, the U.S. development of special (light-weight, strategically deployable) airborne equipment was not feasible.

For the Army, the modernization of the conventional forces incurred tremendous costs. These costs were associated with the designing of the new M-1 Abrams main battle tank, and the M-2 Bradley infantry fighting vehicle in the early 1970s, and then equipping the Army with them in the early to mid-1980s. Throughout this same period, the airborne forces would undergo two organizational changes, the 1970 TO&E (Table of Organization and Equipment) change to the H-series and the 1986 TO&E change to the L-series. There have been several studies reflecting the exact changes that occurred in the transition of the

airborne division from the 1950 TO&E through to the 1986 TO&E, so I will just highlight some of the more significant changes:<sup>68</sup>

	<u>1950</u>	<u>(% change)</u>	<u>1970</u>	<u>(% change)</u>	<u>1986</u>
Division troop strengths:	17,490	(-5 %)	16,575	(-22 %)	12,788
Regiment troop strengths:	3,376	(-29 %)	2,400	(-10 %)	2,155
Division antitank systems:	765	(-39 %)	462	(-6 %)	432
Regiment antitank systems:	128	(+11 %)	144	(-21 %)	114
Division mortar systems:	149	(-21 %)	117	(-23 %)	90
Regiment mortar systems:	47	(-17 %)	39	(-23 %)	30
Division artillery:	84	(-36 %)	54	( 0 %)	54
Regiment artillery:	12	(-100 %)	0	( 0 %)	0
Division vehicles:	2,078	(-17 %)	1,718	(+21 %)	2,185
Regiment vehicles:	253	(+5 %)	267	(-26 %)	198
Division tanks <sup>69</sup>	142	(-62 %)	54	( 0 %)	54
Division helicopters/aircraft:	18	(+1200%)	215	(-45 %)	119

The figures clearly indicate a trend downward in the numbers of personnel and systems assigned to the airborne division. However, an argument in favor of the 1986 TO&E is that the systems have significantly more lethality and range and, therefore, the trend is toward a smaller, more lethal force. This argument would be more plausible if the non-airborne forces of the Army also trended downward in the numbers of personnel and systems. However, the mechanization and modernization of the standard infantry division has resulted in significant increases, not only in the lethality and range of the weapons systems assigned, but also in the quantity and the mobility of the systems. This mechanization and modernization of the infantry units have also occurred in most of the developed countries of the world and in many of the Third World countries.

The modernization of the U.S. airborne forces has suffered for many reasons, but the fact is, that the funding has not been made available for the development and fielding (especially in such small quantities) of "airborne" fighting systems. This has required the

airborne units to either take and modify the Army's new systems to be airdroppable, like the modifications required on the 2-1/2 ton truck; to make due with what they have, like the soon to be obsolete M-551A1 Sheridan armored reconnaissance vehicle; or to accept the new equipment as not airdroppable and lose some forced entry capability, as with the 5-ton truck or the soon to be fielded Pedestal Mounted Stinger (air defense system).<sup>70</sup>

Despite the second-class status of the airborne forces when it comes to research and development funding, they have demonstrated an excellent ability to adapt to the limitations imposed on them and when called upon in the 1980s have responded very successfully. The use of the airborne forces in Grenada, Operation Urgent Fury on 25 October 1983, is another example of the need for a viable strategic force. Preceded by a 700-man Army Ranger airdrop, the assault echelon of the 82nd Airborne Division (two battalions) airlanded with a total of 19 C-141 AirLifter aircraft (one at a time), into Point Salines Airfield. In conjunction with a U.S. Marine amphibious task force, which was departing the U.S. for Lebanon and just happened to be available, the 82nd Airborne Division rescued 662 U.S. citizens and 82 foreign nationals. Additionally, the threat of a Cuban/Soviet takeover of Grenada was neutralized and a democratic government was restored.<sup>71</sup> Two key lessons to be learned from this operation are: First, had the 22nd Marine Amphibious Unit not been available, the urgency of the situation would have required the airborne forces to accomplish the mission alone, before a Marine force could have been assembled and shipped to the area. And second, had the initial airdrop force at Point Salines been met with properly sited and effectively manned ZU-23s (23-mm antiaircraft fire), then the loss of aircraft (possibly full of paratroopers) would have been devastating to the operation.<sup>72</sup> In the

future, airdropping on a large airfield without having to deal with deadly antiaircraft fire is unlikely, even in tiny countries like Grenada.

Operation Just Cause, the contingency operation in Panama, provides another example of the requirement for a viable strategic force. With 13,000 troops permanently stationed or predeployed in Panama, the airborne requirement for forced entry may not have been critical to the overall success of the operation. However, the shock provided by the 5,000 conventional and special forces paratroopers assaulting multiple objectives in conjunction with the ground forces, provided the overwhelming combat power necessary to secure the major military objectives and put down most organized resistance in less than a day.<sup>73</sup> There are two key points to be learned from this operation. First, the firepower and mobility of the mechanized forces contributed significantly to the overall success of the operation. A mechanized infantry battalion, a light armored vehicle company of Marines and a company of M-551A1 Sheridan armored reconnaissance vehicles greatly assisted in delivering the impact of overwhelming U.S. combat power. The sight and sound of a tracked vehicle is unmistakable to a light infantry soldier, armed only with a rifle, and can provide the impact needed to encourage the surrender of these lightly armed enemy troops, avoiding the need for costly fighting. Additionally, the mechanized vehicles provided the direct fire accuracy and surgical destruction needed in peacekeeping operations. Such was the case when the M-551A1 Sheridans were used on the *Commandancia* early in the operation. Finally, the use of mechanized vehicles in MOUT (military operations on urban terrain) provides the firepower, mobility and survivability needed to support the difficult house-to-house fighting associated with these operations. It is for this reason that the bulk of the mechanized

forces committed in this operation were used in support of the clearing of Panama City.<sup>74</sup> The second key lesson to be taken from this operation is that the potential for surprise airborne assaults is extremely limited. By 2200 hours, three hours before the 0100 hours airdrop, U.S. intelligence intercepted Panamanian Defense Force (PDF) radio transmissions that were saying such things as, "They're coming. The ball game is at one o'clock in the morning. Report to your units immediately and draw your weapons and prepare to fight." and "Draw your weapons and get out on the airfield and start shooting at them when they come over. And block the runway."<sup>75</sup> The success of the operation would have been in doubt if the PDF was shooting at the U.S. transport aircraft with air defense missiles and radar guided guns instead of rifles and machine guns.

#### CONCLUSION - U.S./SOVIET POST-WORLD WAR II AIRBORNE DEVELOPMENT

The U.S. and the Soviet Union have taken strikingly different paths in their development of airborne doctrine, organization and equipment. This is strange when one considers the parallel evolution of almost every other U.S. and Soviet military system, from the massive array of nuclear weapons and delivery systems, armored vehicles, and helicopters to the more recent exploration of space and the space shuttles. The reason for the differences in the airborne evolution seems to start with the deviation in the perceived usefulness of the airborne forces. From the days of Marshal Tukhachevsky, the Soviets have always considered their airborne forces a critical component of the third dimension of offensive maneuver. As such, they have integrated concepts for combined arms operations and modernized all components of the force to include the airborne. Unlike the Soviets, the U.S. has never embraced the airborne concept. Caught off guard by the Germans'

use of airborne forces in World War II, the U.S. trained the soldiers to jump out of airplanes but could never train the generals to visualize the true potential of the airborne. Therefore, the U.S.' use of airborne forces has been mentally restricted to the tactical level, in a supporting role to the main attack. Even the recent strategic use of airborne forces by the U.S., in Grenada and Panama, has really been in a supporting role to the main effort in Central Europe. As long as the airborne forces are not considered a part of the main effort, there will not be enough resources left to modernize them. A modernized airborne force could provide the U.S. military with the flexibility it needs to be successful in future combat operations. As Secretary of Defense, Richard B. Cheney has said, "The European-oriented, modernized Army force is unsuitable for the flexibility demands of the 21st-century missions. . . . By the year 2000, the nation will need a . . . highly flexible force that can be more creatively employed . . . anywhere in the world."<sup>76</sup> A careful consideration and assessment of the Soviets' extensive study, experimentation and testing of airborne concepts, doctrine and equipment over the past 60 years, would clearly contribute to our own search for a strategically mobile and flexible 21st Century force.



### CHAPTER THREE ENDNOTES

- <sup>1</sup> COL David M. Glantz, The Soviet Airborne Experience (Fort Leavenworth, KS: Combat Studies Institute, Research Survey No. 4, Nov. 1984), p. 135.
- <sup>2</sup> Jonathan M. House, Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine and Organization (Fort Leavenworth, KS: Combat Studies Institute, Research Survey NO. 2, Aug. 1984) p. 142.
- <sup>3</sup> Harrier F. and William F. Scott, The Soviet Art of War: Doctrine, Strategy and Tactics (Boulder, CO: Westview Press, 1982), p. 201.
- <sup>4</sup> Glantz, p. 136.
- <sup>5</sup> Dr. Graham H. Turbiville Jr., "Soviet Airborne Operations in Theater War," Foreign Policy, Vol XIII, 1986, p. 163.
- <sup>6</sup> Glantz, p. 130.
- <sup>7</sup> COL David M. Glantz, Soviet Force Structure in an Era of Reform (Fort Leavenworth, KS: Soviet Army Studies Office, U.S. Army Combined Arms Center, March 1989), p. 3.
- <sup>8</sup> Turbiville, p. 165.
- <sup>9</sup> United States Army Command and General Staff College (CGSC) Student Text 100-2, U.S. Air Force Basic Data (Fort Leavenworth, KS: CGSC, May 1989), pp. D-8 and D-9.
- <sup>10</sup> Dr. Graham H. Turbiville and MAJ James F. Holcomb, "Soviet Desant Forces," International Defense Review, Vol 21, Sep.-Oct. 1988, p. 3.
- <sup>11</sup> Scott, p. 201.
- <sup>12</sup> Turbiville and Holcomb, p. 3.
- <sup>13</sup> Ibid.
- <sup>14</sup> Turbiville, pp. 166-167.
- <sup>15</sup> Glantz, The Soviet Airborne Experience, p. 148.
- <sup>16</sup> Edward N. Luttwak, Historical Analysis and Projection for Army 2000, Volume 1, Part 17, Soviet Airborne Forces 1930-1983 (DTIC # B085085), March 1983, p. 70.
- <sup>17</sup> Glantz, Soviet Force Structure in an Era of Reform, p. 6.
- <sup>18</sup> Glantz, The Soviet Airborne Experience, p. 149.
- <sup>19</sup> Luttwak, p. 70.
- <sup>20</sup> Field Manual 100-2-3, The Soviet Army Troops, Organization and Equipment (Washington D.C.: Government Printing Office, Nov. 1988), pp. 5-32/33 and 5-42/44. Also, Turbiville, pp. 168-169.

- 21 Turbiville, p. 169.
- 22 MAJ James F. Holcomb, "Soviet Airborne Forces and the Central Region: Problems and Perceptions," Military Review, Nov. 1987, p. 26.
- 23 Luttwak, p. 80.
- 24 Turbiville and Holcomb, p. 5.
- 25 Luttwak, p. 81.
- 26 FM 100-2-3, pp. 5-43/5-74.
- 27 Glenn T. Johnston, "The 120-mm SP Mortar/Howitzer: Its Impact on NATO Rear Area Defense," Armor Magazine, March-April 1986, p. 2.
- 28 Turbiville and Holcomb, p. 4.
- 29 Glantz, The Soviet Airborne Experience, p. 149.
- 30 Luttwak, p. 73.
- 31 Dr. Graham H. Turbiville, "A Soviet View of Helicopter Assault Operations," Military Review, Oct. 1975, pp. 3-15.
- 32 Glantz, The Soviet Airborne Experience, pp. 149 and 154.
- 33 Department of Defense, Soviet Military Power: Prospects for Change (Washington, D.C.: Government Printing Office, Sept. 1989), p. 70. Also, CGSC Student Text 100-2, pp. B-8/11 and D-9/10.
- 34 Luttwak, pp. 78 and 90. Also, Turbiville, pp. 175 and 177.
- 35 Glantz, The Soviet Airborne Experience, p. 157.
- 36 Glantz, Soviet Force Structure in an Era of Reform, p. 7.
- 37 Glantz, The Soviet Airborne Experience, p. 162.
- 38 General Board Report # 17, Types of Divisions Post-War Army, U.S. Forces, European Theater of Operations, 1945, para. 24 and 26. Also General Board Report # 16, Organization, Equipment and Tactical Employment of the Airborne Division, U.S. Forces, European Theater of Operations, 1945, para. 16 and 19. Some of the more significant advances in the firepower of the airborne division (1986 systems versus World War II systems) are: the TOW antitank missile versus the 57mm antitank gun of 1944; the 105mm howitzer versus the 75mm howitzer of 1944; the current M-551A1 Sheridan armored reconnaissance vehicles (an XVIII Airborne Corps asset) versus no armored vehicles in 1944; and the attack helicopters AH-1 and AH-64 (available only if an airfield is secured) versus no helicopters in 1944.
- 39 House, p. 142.
- 40 Eugene H. Bacon and Joseph C. Bernado, American Military Policy: Its Development Since 1775 (Harrisburg, PA: Stackpole Books, 1955), p. 442.

- 41 Mark Lloyd, Army (Italy: Chevprime Limited, 1988), p. 117.
- 42 Jeffrey Record, U.S. Strategy: Tailoring Means to Ends (New York: Pergamon Brassey's Publishers, 1986), pp. 13-14.
- 43 MAJ Robert A. Doughty, The Evolution of U.S. Army Tactical Doctrine, 1946-76 (Fort Leavenworth, KS: Combat Studies Institute, Leavenworth Papers No. 1, Aug. 1979), p. 7.
- 44 MAJ Michael Cannon, "Task Force Smith: A Study in (Un)Preparedness and (Ir)Responsibility," Military Review, Feb. 1988, pp. 72-73.
- 45 Edwin P. Hoyt, Airborne (New York: Stein and Day Publishers, 1985), p. 182.
- 46 Ibid., pp. 181-198.
- 47 Doughty, p. 4.
- 48 Record, pp. 16-17.
- 49 House, p. 154.
- 50 Doughty, p. 17.
- 51 Ibid., p. 19.
- 52 Ibid.
- 53 House, p. 158.
- 54 Doughty, pp. 21-23.
- 55 Lawrence A. Yates, Power Pack: U.S. Intervention in the Dominican Republic, 1965-1966 (Fort Leavenworth, KS: Combat Studies Institute, Leavenworth Papers No. 15, July 1988), pp. 55-118.
- 56 Doughty, pp. 29-35.
- 57 Hoyt, pp. 213-215.
- 58 Doughty, pp. 28-30. Also, House, pp. 161-162.
- 59 Doughty, p. 31.
- 60 Ibid., pp. 35 and 38.
- 61 Ibid., p. 40.
- 62 Ibid., p. 41.
- 63 Ibid.
- 64 Ibid.
- 65 Field Manual 100-5, Operations (Washington, DC: Government Printing Office, Jan. 1986), p. 6.

66 John Lewis Gaddis, Strategies of Containment (New York: Oxford University Press, 1982), p. 323.

67 Doughty, p. 49.

68 MAJ John W. Caldwell, Forced Entry: Does the Current Airborne Division Still Retain This Capability Under the Light Infantry Tables of Organization and Equipment (Fort Leavenworth, KS: USAOGSC School of Advanced Military Studies, Jan. 1987), pp. 15-33.

69 The two medium tank battalions of the 1950 airborne division TO&E were not airdroppable. The M-551 Sheridan battalion is assigned to the XVIII Airborne Corps but attached to the 82nd Airborne Division.

70 Headquarters, 82nd Airborne Division, The 82d Airborne Division Capabilities Book 1988 (Fort Bragg, NC: AC of S, Force Integration, April 1988), pp. ii, 23-4, 25-3, and 25-4.

71 Command and General Staff College, "Operation Urgent Fury," (Fort Leavenworth, KS: Script for, Grenada Briefing For International Officers, 1985), pp. 1-10.

72 Ibid., p. 10.

73 Dennis Steele, "Operation Just Cause," Army, Feb. 1990, p. 36.

74 Ibid., pp. 40-44.

75 LTG Carl Stiner, "The Architect of Just Cause," Army Times (Interview), March 12, 1990, p. 15.

76 Secretary of Defense, Richard B. Cheney, "Strategic Underpinnings of a Future Force," Military Review, Oct. 1986, p. 9.

## CHAPTER FOUR

### COMPARISON OF CURRENT U.S. AND SOVIET AIRBORNE FORCES

The whole idea of dropping onto or very near the objective, assembling, and seizing the objective before the enemy could make any substantial response stemmed from the fact that, once down, paratroopers had the mobility of the boot. Incapable of maneuver and short of heavy equipment, they were at the mercy of even the lightest mechanised security force until they had completed their mission and dug in or evaded. By contrast, the last thing mechanised airborne troops want to do is to drop onto or near their objective, forfeiting tactical surprise and exposing themselves to battle when at their weakest.

Richard E. Simpkin, Race to the Swift<sup>1</sup>

### INTRODUCTION

The evolution of the airborne in the Soviet Union and the U.S., while based upon the principle of airdrop as the means of insertion, has resulted in two very different forces. This chapter will review the current capabilities and limitations of these two forces, while comparing their missions, force designs and equipment. The use of the Soviets' airborne force for comparison is not intended to presuppose a U.S. versus Soviet airborne conflict, although conflicting U.S. and Soviet strategic interests may result in strategic force encounters in the future. The Soviets are used in this comparison because they have had the vision, desire, unity of effort and resources to develop their airborne forces as an essential part of their deep attack capability and as the fundamental component of their strategic force projection capability. Detailed, item by item listings of information readily available in Field Manuals and TO&Es are not the intent of this chapter. Rather, the goal is to highlight the significant and relevant

differences in the forces in an effort to identify the concepts upon which the modernization of the U.S. airborne forces can be based.

#### THE MISSION OF THE AIRBORNE - U.S. AND SOVIET COMPARISON

The first area to be addressed, in the comparison of the U.S. and Soviet airborne forces, is the missions of these airborne forces as detailed in doctrinal literature. The Soviet airborne missions have significantly changed since World War II. During World War II, the airborne units had limited tasks: to capture objectives and hold them for follow-on forces or until ground forces could linkup. The depth of these objectives did not exceed 100 kilometers and the duration of the combat was short. The main form of combat was defensive, as tactical mobility was extremely low, and there were insufficient means to deal with enemy tanks.<sup>2</sup> As discussed earlier, to be able to overcome these shortcomings and to be able to accomplish the operational and strategic missions the Soviets believed the airborne forces needed to accomplish, they designed and produced the airlift aircraft and airborne equipment needed to realize their concepts.

At the operational level, airborne forces are assigned the mission of conducting airborne assaults to a depth of several hundred kilometers (150 - 400) in support of army or front missions. These operations will normally be regimental size or larger, include airland elements and may be conducted jointly with the naval infantry. More specifically, these missions are:

1. To destroy operational-tactical nuclear weapons, important command posts and installations in the enemy's rear.
2. To interdict the approach of operational reserves.
3. To assist in the advance of ground troops.
4. To capture and put airfields and air bases out of operation.

5. To capture islands, straits, ports, naval bases and beaches to further facilitate combat operations.

6. To assist in encircling and destroying large enemy groupings. The ability of the Soviet airborne to accomplish these missions has been demonstrated on numerous large-scale exercises.<sup>3</sup>

On the strategic level, airborne forces are controlled at the highest levels. It seems likely that a strategic airborne operation, that is a component of a theater strategic offensive, would be controlled by the High Command of Forces in the Theater of Military Operations (TVD). Independent strategic airborne operations would be controlled by the General Staff / Supreme High Command. These operations can be composed of one or more airborne divisions and executed at distances hundreds of kilometers beyond the forward edge of the battle area. The airborne divisions may be reinforced by airlanding motorized rifle troops.<sup>4</sup> The missions identified for the airborne forces at the strategic level are:

1. Seizure of major political, administrative and economic centers.
2. Destruction of military and civil control.
3. Seizure of vital islands, straits and peninsulas.
4. Opening of a new front by invasion of enemy territory.
5. Forcing individual states to withdraw from enemy coalition.

The invasions of Czechoslovakia in 1968 and Afghanistan in 1979 were initiated by airborne forces and demonstrate the Soviet's willingness to employ their airborne forces to accomplish strategic missions.<sup>5</sup>

Like the Soviets' World War II airborne missions, the U.S. airborne missions were focused on tactical objectives in support of ground operations. "The airborne force was conceived . . . to assault or envelop the enemy from the air and seize and hold limited objectives to assist in the advance of the main forces."<sup>6</sup> In fact, the War

Department Training Circular Number 113, dated 9 October 1943, clearly oriented the use of airborne forces to tactical roles with its insistence that, "Airborne troops should not be employed unless they can be supported by other ground or naval forces within three days."<sup>7</sup> Although there were some proponents for the operational use of the airborne forces, the conservative, immediate tactical missions were the only ones assigned. A review of the current specific U.S. airborne missions shows the U.S. still thinks of the airborne as a supporting force to be used in a tactical role.

The general mission of the 82nd Airborne Division is "to deploy anywhere in the world and be prepared to conduct combat operations to protect U.S. national interests."<sup>8</sup> This is an ambitious mission statement, especially when the capabilities of the threat (to be discussed in chapter five) are matched up against the current airborne division's combat power. The specific missions assigned to the airborne division will be analyzed in three categories, tactical missions, strategic missions and other missions. The first group of specific missions to be discussed will be the tactical missions.<sup>9</sup>

1. "Seize and hold via vertical envelopment vital objectives behind enemy lines until linkup with supporting forces." This mission is essentially the same mission assigned to the division in 1943. The need for a linkup with ground forces "behind enemy lines" implies a fairly shallow depth for the assault, probably less than 100 miles. The effectiveness of the helicopter has made this mission unlikely or even obsolete.

2. "Conduct large scale raids." By definition a raid is a limited objective attack. This type of attack is typical of the World War II supporting attack role for the airborne. The development of the Ranger Regiment and the significant growth in the Special Operations Forces



have all but eliminated the need for the airborne division to accomplish this mission. The three separate airborne battalions (in Panama, Alaska and Italy), would still be expected to accomplish this mission, in their respective theaters.

3. "Occupy areas or reinforce friendly or allied units beyond the immediate reach of ground forces." This mission is another limited holding or reinforcing mission to be conducted until the ground forces can linkup. Again, the efficiency of the helicopter makes this mission unlikely. Additionally, the intent of the phrase "beyond the immediate reach" is nebulous and subject to significant variation in interpretation.

The second group of specific missions to be discussed includes those missions assigned that can be considered strategic in nature.

1. "Rescue of U.S. nationals besieged overseas." This can be considered a strategic mission and a mission that the airborne forces are capable of performing, as demonstrated by Operation Urgent Fury in Grenada. However, unless the threat is very light, the non-surgical nature of an airborne assault may not be the best choice for this mission. Special Operations Forces reinforced by Light Infantry Division forces could accomplish this mission in a low threat environment. While in a high threat environment, like Iran, the current airborne division may be too light to accomplish the mission.

2. "Capture one or more intermediate bases or forward operating bases for protracted ground/air operations." This mission is a good strategic airborne mission, provided the countries involved are not defending their airfields. And if undefended, the Light Infantry Division units could be used to secure these bases.

The third group of specific U.S. airborne missions to be addressed will be the missions that do not clearly fall into the tactical or strategic categories.

1. "Exploit the effects of nuclear or chemical weapons." This mission was a key mission for the Soviet airborne in the 1950s and 1960s and led to their design of vehicles with NBC (nuclear, biological and chemical) filtration and overpressure systems. With the growing Soviet focus on war without nuclear weapons, this specific mission for their airborne has lost its earlier importance. Since we have not equipped our airborne forces to operate freely in a NBC environment, it may be time we also dropped this mission.

2. "Reinforce forward deployed forces." and

3. "Serve as a strategic or theater reserve." These are the same missions the airborne divisions were assigned in World War II. Of course, the units they were reinforcing were also nonmechanized infantry units. Now the forward deployed forces are primarily mechanized and opposed by mechanized threat forces. The success of the light airborne infantry against these mechanized forces is reflected in an after-action report on a recent REFORGER exercise. The brigades were good for a "one night stand . . . the enemy overwhelms the dismounted U.S. forces in tactical mobility and firepower. Foot mobility is simply not adequate to cope with the mechanized mobility of the Soviets."<sup>10</sup>

The problem with the missions currently assigned to the U.S. airborne, is that they are still based on the World War II mentality of the airborne - a novel "gimmick" force to be used tactically, to seize and hold limited objectives in support of the main attack. A quick comparison with the Soviets' airborne missions reflects a striking difference in the way each country plans to project their combat power on the strategic level. The Soviets have clear, achievable strategic and operational missions for their airborne forces, while the U.S. has limited, defensive and tactically oriented, missions. Even the early draft of FM 90-26, Airborne Operations, has detailed for the airborne forces these same types of limited, defensive, tactically oriented

missions, or missions based on the seizure of an airhead. Additionally, the airborne division now competes with the Special Operations Forces, the Light Infantry Divisions, an Air Assault Division and the Marines for use as America's strategic force. Just what is the mission of the U.S.' airborne forces? In light of the significant changes in the world, now is the time to clearly establish the 21st Century missions upon which the modernization of the airborne forces can be built. A modernized airborne force must consider the other strategically deployable forces already a part of the U.S. military structure and evolve in a manner that will provide the Nation a unique strategically oriented offensive capability that complements these other forces. This modernized force must be able to respond anywhere in the world and to conduct combat operations to protect U.S. national interests. As Lieutenant General James M. Gavin has said, "[The airborne forces] must be employed where their action would be decisive, and not scattered about for local gains."<sup>11</sup>

#### THE FORCE DESIGN OF THE AIRBORNE - U.S. AND SOVIET COMPARISON

In an effort to draw out the significant differences in the U.S. and Soviet airborne forces, the combat power of the airborne squads and companies will be compared initially. The remainder of this section will then focus on a comparison of the firepower, mobility and survivability of a U.S. "task organized" airborne brigade versus a Soviet airborne regiment. A discussion of the deployability and divisional assets available to augment these forces will be included.

The airborne infantry squad is the base upon which the entire airborne force is built. The Soviet BMD is the main difference between the Soviet and the U.S. airborne squads. By being mounted on the BMDs, the Soviet squad is capable of carrying tremendous firepower into

battle, maneuvering great distances through NBC contaminated areas or across water obstacles and surviving small arms and artillery or mortar fires. More important, on the modern battlefield, each squad can kill tanks at great distances. The breakdown of each squad's combat power follows:

SOVIET AIRBORNE BMD SQUAD - (7 personnel)<sup>12</sup>

- 1 ea BMD Airborne Amphibious Infantry Combat Vehicle (AAICV)
- 1 ea AT-4 or AT-5 ATGM (antitank guided missile, range 4 km)
- 1 ea 73-mm or 2A42 30-mm cannon (maximum effective range 1 km)
- 3 ea 7.62-mm Machine Guns (one coaxial, two bow mounted)
- 1 ea RPG-16D ATGL (antitank grenade launcher, range 800 m)
- 1 ea RPKS-74 LMG (5.45-mm light machine gun)

Other: NBC filtration system, firing ports, infrared capability  
Armor protection, cruising range of 320 km, amphibious.

U.S. AIRBORNE SQUAD - (9 Personnel)<sup>13</sup>

- 2 ea M-249 Squad Automatic Weapon (5.56-mm light machine gun)
- 2 ea M-203 Grenade Launcher (on M-16 rifle, range 400 m)

Other: AT-4 Light Antitank Weapon (84-mm, range 300 m, issued as required), squad is 100% night vision equipped.

The combat power comparison of firepower, mobility and survivability, strongly favors the Soviet squad. This squad is clearly more capable of offensive action and of dealing with a modern mechanized threat. There is also no requirement to support or augment this squad with any combat power other than indirect fire. The U.S. squad, on the other hand is easily deployable has excellent night capability and is transportable in light-lift helicopters. However, even if reinforced with one-half of the weapons in the weapons squad (one Dragon antitank weapon, range 1,000 meters, and one M-60 machine gun) the squad still falls far short of the Soviet squad's capability when it comes to conducting combat operations "anywhere in the world".

In further comparing the U.S. and Soviet airborne force structure, I will now skip over the platoons and briefly address the airborne companies. At the company level, the Soviets are organized

with three BMD platoons of three BMD squads and a company headquarters with one BMD. The U.S. airborne company also has three rifle platoons (each with three rifle squads and a weapons squad) and one 60-mm mortar section, with two mortars. For the sake of this comparison, we will assume the U.S. airborne battalion has reinforced the company with a platoon from the battalion's antiarmor company. This platoon consists of two antiarmor sections of two TOWs (tube launched, optically tracked, wire command link guided missiles) each. The TOWs, are wheeled vehicle mounted, antiarmor systems with a range of 3,750 meters. A breakdown of each company's combat power is provided in Table 4-1.

TABLE 4-1  
COMPANY LEVEL COMBAT POWER COMPARISON<sup>14</sup>  
SOVIET ABN COMPANY                      U.S. ABN COMPANY (Reinforced)

MANNING: (Soviet / U.S.) 75 personnel / 152 personnel

MOBILITY: (Soviet / U.S.)

BMD (AAICV) 10 ea / 6 ea High Mobility Multipurpose Wheeled Vehicle

ANTI-TANK - FIREPOWER: (Soviet / U.S.)

AT-4 or AT-5 ATGM (range 4 km) 10 ea / 4 ea TOW ATGM (range 3.75 km)

No Equivalent Weapon / 6 ea Dragon ATGM (range 1 km)

RPG-16D ATGL (range .8 km) 9 ea / As Req AT-4 Antitank Weapon

DIRECT FIRE - FIREPOWER: (Soviet / U.S.)

73-mm or 2A42 30-mm cannon 10 ea / No Equivalent Weapon

7.62-mm Machine Guns 30 ea / 6 ea 7.62-mm Machine Guns

RPKS-74 5.45-mm LMG 9 ea / 20 ea SAW 5.56-mm LMG

No Equivalent Weapon / 26 ea M-203 Grenade Launcher

No Equivalent Weapon / 2 ea 60-mm mortars

OTHER: NBC filtration system, firing ports, infrared capability, armor protection, 320 km range, amphibious.      OTHER: 75% night vision capability.

Many of the same points made in the comparison of the airborne squads apply to the airborne companies. The offensive capabilities of the Soviet squad become even more apparent when aggregated at the company level. It is also apparent that the Soviets have designed their airborne force to be offensively oriented with a emphasis on direct fire weapons. The BMD-mounted 73-mm cannon and 7.62 Machine guns provide the company the ability to fire and maneuver, while the antitank weapons provide this same force a reliable long-range tank killing capability. In contrast, the U.S. reinforced company has twice as many personnel and light weapons, but is extremely limited in mobility and heavy firepower (only 6 machine guns). It appears that the U.S. force is designed for the defensive, static missions assigned to the airborne forces in World War II. The strategic mobility of the U.S. company is clearly better than the Soviet company but not by as much as it may first seem. It will take approximately two C-141B aircraft to airdrop the U.S. company and four IL-76 aircraft for the Soviet company.

For the final comparison of airborne forces, I will skip the battalion echelon of the airborne divisions and focus on the regimental level. The regimental level is a likely size of airborne force to be used in conventional airborne missions or strategic force projections by both countries. Missions that can be accomplished by smaller forces will probably be conducted by the Special Forces units in a more surgical type of operation. Although, the Soviets are capable of airdropping the assault elements of two airborne divisions in one lift, they would normally drop no more than a regiment (and often just a battalion) on any one drop zone.<sup>15</sup> For the U.S. airborne forces, the

requirement for the U.S. Air Force, Military Airlift Command, is to be able to airdrop one Division Ready Brigade (a brigade-sized task force organized with a slice of the division's combat, combat support and combat service support units), in one lift.<sup>16</sup> (See Appendix A). Both the Soviet and U.S. airborne regiments are built upon three airborne battalions. However, the Soviets' airborne regiment is a fully integrated combined arms team that includes artillery, air defense, engineers, signal and other combat support and combat service support units that are organic to the regiment (see Appendix A). The U.S. Brigade, on the other hand is a command and control element with a headquarters and headquarters company and three battalions assigned. Each battalion has three infantry companies, an antiarmor company and a headquarters and headquarters company (with a four tube 81-mm mortar platoon and a motorcycle mounted scout platoon). The brigade controls the three battalions and the other units attached or supporting the brigade. The combat power breakdown at Table 4-2 uses an organic Soviet regiment and a task organized Division Ready Brigade (DRB) for the combat power comparison.

Like the comparison of the airborne squads and companies, the regimental comparison accentuates the concepts upon which the forces are designed and equipped. The Soviet regiment is designed for offensive maneuver and direct fire firepower, while the U.S. DRB is designed for seizing and securing an airfield and holding an airhead with minimum tactical maneuver and heavy indirect fire firepower. A more detailed discussion of the mobility, firepower and survivability of these forces follows.

TABLE 4-2

REGIMENTAL AIRBORNE FORCES COMBAT POWER ANALYSIS<sup>17</sup>  
SOVIET AIRBORNE REGIMENT                      U.S. AIRBORNE DRB (Medium)<sup>1</sup>

MANNING: (Soviet / U.S.)


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1,473 personnel / 2,667 personnel

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MOBILITY: (Soviet / U.S.)

Armored vehicles (85 % BMD)    134 ea /    4 ea    M-551A1 Sheridan (Lt Tank)  
 Wheeled vehicles<sup>2</sup>                      151 ea / 210 ea    77 % HMMWV  
 Helicopters                                      / 15 ea    8-Lift/4-Scout/3-Attack<sup>3</sup>

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ANTITANK - FIREPOWER: (Soviet / U.S.)

AT-4 or AT-5    ATGM (range 4 km)    99 ea/20 ea    TOW ATGM (range 3.75 km)<sup>4</sup>  
 No Equivalent Weapon                                      /54 ea    Dragon    ATGM (range 1 km)  
 RPG-16D    ATGL (range .8 km)                      111 ea/As Req AT-4    Antitank Weapon

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DIRECT FIRE - FIREPOWER: (Soviet / U.S.)

No Equivalent Weapon<sup>5</sup>                                      / 4 ea    M551A1 Sheridan (152-mm)  
 73-mm or 2A42    30-mm cannon                      90 ea/ 34 ea    50 cal. Machine Guns<sup>6</sup>  
 7.62-mm Machine Guns                                      278 ea/ 61 ea    7.62-mm Machine Guns<sup>6</sup>  
 RPKS-74    5.45-mm LMG                                      83 ea/162 ea    SAW    5.56-mm LMG  
 ASG-17 Automatic Grenade Launcher 18 ea/                      No Equivalent Weapon  
 No Equivalent Weapon                                      /350 ea    M-203 Grenade Launcher  
 No Equivalent Weapon                                      / 27 ea    M-202 66-mm Flash<sup>7</sup>

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INDIRECT AND AIR DEFENSE - FIREPOWER: (Soviet / U.S.)

No Equivalent Weapon                                      / 18 ea    60-mm mortar (Rg 3.4 km)  
 No Equivalent Weapon                                      / 12 ea    81-mm mortar (Rg 5.6 km)  
 2S9 120-mm How (SP) (Rg 10 km)<sup>8</sup> 6 ea / 18 ea    M-119 How 105-mm (19.5 km)  
 ZU-23 ADA gun (Rg 2.5 km)                      6 ea / 3 ea    Vulcan ADA Gun (Rg 1.2 km)  
 SA-14/16 missile (Rg 5.5 km)    36 ea / 40 ea    Stinger missile (Rg 4 km)

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Note 1: Division Ready Brigade (Medium) is a generic force package used by the 82nd Airborne Division as a point of departure for rapidly tailoring forces for specific contingencies. It has a medium mix of firepower and some helicopter mobility as it incorporates the division's medium slice of combat, combat support and combat service support



units. It requires 74 ea C-141 aircraft and 3 ea C-5 aircraft, 45 ea of the C-141 aircraft will airdrop and the remaining 29 ea C-141 aircraft and 3 ea C-5 aircraft will airland once an airhead is secured.<sup>18</sup>

Note 2: The number of wheeled vehicles does not include the 61 ea trucks in the Soviet regiment's parachute rigging and resupply company as these companies would probably not deploy initially, especially if the number of aircraft available was limited.

Note 3: The helicopters in the DRB (Medium) force package are: 8 ea UH-60 Black Hawk light lift helicopters, 4 ea OH-58 Kiowa observation helicopters and 3 ea AH-1S Cobra attack helicopters. A number of C-5 Galaxy, heavy airlift aircraft, are normally required to transport these helicopters and require a major airfield to be cleared and secured to airland.

Note 4: This comparison counts only the launchers. However, while the 3 ea AH-1S Cobra attack helicopters are each considered one launch platform, each one is still counted as two systems in this number because of the larger basic load of the Cobra versus the BMD or the HMMWV. The DRB (medium) only deploys with a platoon from each of the antiarmor companies, in each battalion. If the DRB took all the antiarmor assets organically available there would be a total of 60 TOW systems deployed, not counting the aviation brigade's assets. The smaller number of TOWs is used to keep the airframe requirements for the DRB (medium) down.

Note 5: Although not indicated in this comparison, the Soviet airborne division has a battalion of ASU-85 light tanks that are airdroppable. Given the deployment of a single regiment there would likely be at least one company of 10 ea ASU-85s augmenting this regiment.

Note 6: There are additional M-2 .50 caliber machine guns and M-60 machine guns mounted on or assigned to the attached units arriving with the airland forces. These weapons will be used primarily for local security within the airhead and are not considered part of the combat power available to securing the airhead. The 12 ea M-2 machine guns that are airdropped in with the 2 1/2 ton trucks in the airdrop echelon are included in the numbers indicated.

Note 7: The M-202 Flash is a four barrel 66-mm incendiary rocket launcher that has a range of 1 km. The weapon weighs 26.1 pounds and is a non-dedicated "arms room weapon," which means it is issued as required and fired by personnel not specifically trained for its use.

Note 8: As with the ASU-85s, the Soviet airborne division has artillery assets available at division level that are not indicated in this comparison. The division has an artillery regiment that would likely provide the maneuver regiment with additional artillery assets. These assets include a battalion of D-30 122-mm howitzers (soon to be replaced by the 2S9 120-mm (SP) howitzers) and even a battery of BM-21V 122-mm multiple rocket launchers with a range of 20,380 meters. All division artillery systems are airdroppable.<sup>19</sup>

#### MOBILITY OF REGIMENTAL AIRBORNE FORCES

The mobility of these two regimental-sized airborne forces can be addressed in two parts, strategic and tactical. In considering strategic mobility one would think the troop heavy, lightly equipped U.S. airborne DRB would require fewer aircraft to deploy than the light mechanized Soviet regiment. The fact is, that the DRB requires 79 ea C-141 aircraft and the Soviet regiment only 60 ea IL-76 aircraft.<sup>20</sup> These aircraft, the C-141 and the IL-76, have very similar airlift capabilities so how can the Soviets project a force that is apparently so heavy (134 armored vehicles), with 25% fewer aircraft? The answer is that the Soviets have spent years designing their aircraft and their equipment to optimize their deployability. So, while the U.S. DRB has about the same number of vehicles as a Soviet regiment, by specifically designing equipment for their airborne division, the Soviets have minimized their airlift requirements. Additionally, their concept of self-propelled equipment with multiple capabilities, like the 2S9 howitzer/antitank system or the BMD troop transport/long-range tank killer, enables them to get more combat capability into each aircraft. Finally, they have fewer personnel in their regiment. The difference in the number of personnel, between the Soviet regiment and the U.S. DRB, is 1,194, or about 10 ea IL-76 aircraft. By mounting their combat troops in fighting vehicles, they can transport their combat troops with

the heavy weapons and support they need to fight. This seems to have eliminated the requirement for as many support troops and as much support equipment (vehicles and trailers) as is required by the U.S. DRB. This also enables them to airdrop all their combat forces and eliminates their need for the seizure and security of an airfield. Unlike the Soviet regiment, the DRB (medium) is tied to the security and defense of an airhead with a large undamaged airfield, if they are to get in their 33 ea airland aircraft (40% of the total DRB aircraft). These airland aircraft are especially important because they include the helicopters. The UH-60 helicopters provide the only real tactical mobility for the force. Clearly, the Soviets have designed their force with a more efficient tooth-to-tail ratio.

At the tactical level, the BMD-mounted combat troops are the product of the Soviet's belief in tactical mobility. As discussed earlier in this thesis, the Soviets' have determined that tactical mobility is absolutely critical to the effectiveness of their airborne forces. Doctrinally, maneuver is also important to U.S. operations. FM 100-5 defines maneuver as "the dynamic element of combat - the means of concentrating forces at the critical point to achieve the surprise, psychological shock, physical momentum and moral dominance which enables smaller forces to defeat larger ones."<sup>21</sup> Unfortunately, unlike the Soviet airborne vehicles which are designed to provide tactical maneuver to the combat forces, U.S. vehicles are used to carry the weapons, ammunition or support personnel and their equipment. The U.S. vehicles are not used to "move forces in relation to the enemy to secure or retain positional advantage."<sup>22</sup> Rather, they are used to augment the combat troops with firepower, much of it indirect, while doing little to augment the foot mobility of the combat troops. This foot mobility limits the speed of an attack to three miles per hour and limits the

bulk of the direct fire firepower of the attack to the weapons that an infantryman can carry.

The U.S. airborne forces are especially vulnerable, if the airfield upon which they airdropped is rendered unusable, possibly by a surface to surface chemical missile attack (a very real Third World threat in the next 10 years). The loss of the airfield would not only eliminate the DRB's only real tactical mobility, the 8 ea UH-60s helicopters airlanding in the C-5 aircraft, but would also prevent reinforcement of the airhead by airland. With their lack of mobility, the DRB would be unable to move any significant distance to another airfield. With no airland reinforcement possible and the next DRB airdrop as much as one to four days later, the survival of the initial forces would be in doubt. Unlike the U.S., the Soviets' emphasis on airborne operations has enabled them to develop the capability to reinforce a regiment within minutes, purely by airdrop, with up to five additional regiments. Or, in the case of the chemical attack on an airfield, the Soviets have the capability to attack, with the regiment on the ground, up to 320 km, to seize another airfield within hours.

#### FIREPOWER OF REGIMENTAL AIRBORNE FORCES

As with the comparison of airborne companies, the regimental airborne forces comparison indicates a significant difference in the amount of firepower and the types of firepower of the two airborne divisions. The Soviet regiment has a distinct advantage over the U.S. DRB in long-range antitank capability (5 to 1 ratio) and in medium and heavy direct fire capability (3.8 to 1). This is primarily due to the ability of the BMDs to carry several large caliber weapons and antitank guided missiles. This lethal firepower, mounted on a tracked vehicle, provides exceptional offensive capability. The U.S. DRB, on the other

hand, has a clear superiority over the Soviets in indirect firepower (8 to 1). This does not even consider the U.S.' heavy dependence on U.S. Air Force fire support. Indirect fire requires little mobility to support light infantry defensive operations. This fits very well with the secure and defend role, made popular by the World War II use of airborne forces. This concept may still be viable in many parts of the world. However, as the military capabilities of the Third World improve, the ability to secure an airhead may be beyond the capabilities of a light infantry force.

The U.S. regiment does have an advantage in numbers of rifleman and small arms fire (1.8 to 1 overall and 1.3 to 1 at squad level). The question then is, is it better to have more troops and less heavy firepower or to have less troops and more heavy firepower? This question was answered by J.F.C. Fuller when he said, "the machine gun was the concentrated essence of infantry, its invention put into the hands of one man the fire-power formerly wielded by forty."<sup>23</sup> It is also interesting to note that the evolution of the U.S. regular infantry forces appears to subscribe to the "more firepower - less troops" theory. With the recent modernization of the mechanized infantry, the mechanized infantry squad went from 11 men and a M-113 personnel carrier with a M-2 .50 caliber machine gun, to 9 men and the M-2 Bradley Fighting Vehicle with a TOW ATGM, a 25-mm automatic gun and a coaxial 7.62-mm machine gun. The airborne squad also went from 11 men to 9 men but without an offsetting increase in firepower.

#### SURVIVABILITY OF REGIMENTAL AIRBORNE FORCES

The survivability of the Soviet regimental forces is significantly enhanced by the armor, the mobility and the NBC overpressure of the BMD. The armor provides protection from indirect

fire which becomes especially important when a regiment is forced to defend an area that is easily targeted, like an airfield. The effects of indirect fire can be devastating to a light infantry force, even in prepared positions which will not be readily available following an airdrop. Lessons learned at the National Training Center indicate that, "A light infantry company in well prepared survivability positions lost 58% of its combat strength during a major maneuver exercise when opposing forces concentrated indirect fires on the unit for three hours."<sup>24</sup> Armor also provides protection from small arms fire and grenades.

The mobility of the BMD will also improve the survivability of the Soviet forces. The BMD provides the airborne forces with armored mobility to quickly move away from the drop zone, an area that will draw any fires the enemy can muster. Also, by having the ability to quickly maneuver, a force can avoid an enemy strength or exploit an enemy weakness. The mobility and armor protection of the 2S9 120-mm howitzer (SP) will greatly enhance its survivability against counterbattery fires. Finally, the worldwide proliferation of chemical weapons and the likely targeting of airfields makes the NBC overpressure of the BMD important to the survivability of the Soviet airborne regiment. Still, some U.S. light infantrymen would argue that the lightness of the light infantry, in and of itself, enhances survivability. While this may have been, or is now, true in a low intensity conflict, this environment is likely to be the exception rather than the rule by the 21st Century.

#### CONCLUSION - U.S. SOVIET AIRBORNE FORCES COMPARISON

The development of the U.S. and Soviet airborne forces has resulted in two significantly different forces. This chapter has identified the need for a reevaluation of what the U.S. wants the

airborne forces of the future to accomplish. The missions of the Soviet airborne forces, while not perfect, provide some indication of what a strategically deployable airborne force can be expected to accomplish if properly equipped. The needs of the Nation in the 21st Century will help focus the development of these missions. Another concern is, just what should the orientation of the U.S. airborne forces be toward combat? If the needs of the Nation require an offensive capability, then much can be learned from the modernization effort of the Soviets. A focus on direct fire capability and tactical mobility, with a reduction in their indirect fire capability and numbers of light infantry troops is the Soviets' solution to the failures of their airborne operations during World War II. Another critical issue identified in this comparison concerns the U.S. airborne's requirement to secure an airfield for follow-on airland forces. Although not specifically stated, the required airlanding of over 40% of a DRB's aircraft is a clear indication that airfield seizures will continue to be an essential requirement for the U.S. airborne forces. The future threat may make this requirement difficult if not deadly. Finally, the Soviet's ability to project up to six airborne regiments to the U.S.' one, indicates the relative importance each nation has put on their respective airborne forces. If the Army is going to be a deployable, versatile and lethal strategic force in the future, the airborne forces must be modernized to meet the 21st Century threat. The nature of this threat will be discussed in the next chapter.

#### CHAPTER FOUR ENDNOTES

<sup>1</sup> Richard E. Simpkin, Race to the Swift (New York, NY: Brassey's Defence Publishers, 1985), p. 156.

<sup>2</sup> Edward N. Luttwak, Historical Analysis and Projection for Army 2000, Volume 1, Part 17, Soviet Airborne Forces 1930-1983, (DTIC # B085085, March 1983), pp. 156-157.

<sup>3</sup> Dr Graham H. Turbiville Jr., "Soviet Airborne Operations in Theater War," Foreign Policy, Vol XIII, 1986, pp. 173-174.

<sup>4</sup> Voroshilov General Staff Academy, "Employment of Military Transport Aviation to Assault Land and Airborne Division in the Rear of the Enemy," Lecture Notes, mid-1970s (Fort Leavenworth, KS: Soviet Army Studies Office, Dec. 1989), pp. 8-9.

<sup>5</sup> Turbiville, pp. 176-177.

<sup>6</sup> General Board Report # 17, Types of Divisions Post-War Army, U.S. Forces, European Theater of Operations, 1945, para. 19.

<sup>7</sup> War Department Training Circular Number 113, Employment of Airborne and Troop Carrier Forces (Washington DC: Government Printing Office, 9 Oct. 1943), para. 4d.

<sup>8</sup> Headquarters, 82nd Airborne Division, The 82nd Airborne Division Capabilities Book 1988 (Fort Bragg, NC: ACofS, Force Integration, April 1988), p. 2-5.

<sup>9</sup> Ibid.

<sup>10</sup> LTG James F. Hollingsworth and MG Allan T. Wood, "The Light Armored Corps - A Strategic Necessity," Armed Forces Journal International, Jan. 1980, p. 20.

<sup>11</sup> LTG James M. Gavin, Airborne Warfare (Washington, DC: Infantry Journal Press, 1947), p. 35.

<sup>12</sup> Field Manual 100-2-3, The Soviet Army Troops, Organization and Equipment (Washington, D.C.: Government Printing Office, Nov. 1988) p. 4-134. While some of the systems have a reload capability, this thesis will compare the units based on the number of launchers and not the numbers of missiles or rounds carried in the basic load.

<sup>13</sup> The 82nd Airborne Division Capabilities Book 1988, p. 5-11. While some of the systems have a reload capability, this thesis will compare the units based on the number of launchers and not the numbers of missiles or rounds carried in the basic load.

<sup>14</sup> FM 100-2-3, p. 4-134. Also, The 82nd Airborne Division Capabilities Book 1988, p. 5-7.

<sup>15</sup> COL Peter Kolecko, "Soviet Airborne Forces Part II," Truppendienst, Vol 25, No. 6, 1986, p. 12.



16 LTC Lou Matz, "Airdrop Is It Still a Viable Tactic," Airlift Magazine, Spring 1988, p. 8.

17 FM 100-2-3, pp. 4-135/138. Also, The 82nd Airborne Division Capabilities Book 1988, pp. 5-3/7 and 24-1/25-5.

18 Headquarters, 82nd Airborne Division, Memorandum For, Subject: "82nd Airborne Division Generic Force Packages," dated 21 Jan. 1988, pp. 16-D-1/16-D-7 and 16-H-2.

19 FM 100-2-3, p. 4-143.

20 MAJ James F. Holcomb, "Soviet Airborne Forces and the Central Region: Problems and Perceptions," Military Review, Nov. 1987, p. 10.

21 Field Manual 100-5, Operations (Washington D.C.: Government Printing Office, May 1986), p. 12.

22 Ibid.

23 John Keegan, The Face of Battle (New York: Viking Press, 1976), p. 228.

24 Center for Army Lessons Learned 89-2, "Heavy-Light Lessons Learned," (Fort Leavenworth, KS: CALL, June 1989), p. 12.

## CHAPTER FIVE

### THE FUTURE THREATS AND THEIR IMPACT ON AIRBORNE FORCES

You look at other parts of the world. Every place there is a degree of sophistication, every place there are some armored vehicles, there's helicopters. Nobody is sitting there with spears and clubs.

GEN John W. Foss, Commander, TRADOC<sup>1</sup>

Three trends, already underway, are beginning to undermine the superpower order: the rise of assertive regional powers or power blocks, the proliferation of military technologies across the spectrum of capabilities, and the globalized competition with the closest allies . . . for economic and political influence. . . . With the gradual ebb of superpower predominance will emerge a panoply of contenders for power who are better equipped than before - psychologically, militarily and economically. . . . They will inevitably pose new risks to U.S. national security.

The Center for Strategic and International Studies<sup>2</sup>

### INTRODUCTION

The changes that are occurring in the Soviet Union and Eastern Bloc nations have clearly reduced the threat of a superpower confrontation in Europe. But change, in and of itself, induces instability and the world environment is changing significantly. The world is becoming increasingly multi-polar as regional power centers become stronger and grow in number. Conflicts between these new power centers can pose clear threats to U.S. security interests. And as these developing countries continue to gain significant military capabilities, they are more likely to resort to force in settling their disputes.<sup>3</sup> While the U.S. is now, and will likely remain, prepared to deal with the change that is occurring in Europe, the changes occurring in the Third

World are likely to present the U.S. with a more formidable challenge than the U.S. is prepared to deal with. This chapter will identify and address this future threat with a focus on the impact this threat will have on the ability of the U.S. to project power. Since the mission of the U.S. airborne forces is likely to remain, "to deploy rapidly anywhere in the world and be prepared to conduct combat operations to protect U.S. national interests," the understanding of this future threat is essential to the design of a versatile, deployable and lethal airborne force.

### 21st CENTURY THREATS - GENERAL

Overall, 21st Century threats to U.S. national interests can be addressed in three main areas: the growing instability of the Third World as a result of unchecked population growth, weak economies, terrorism, religious fanaticism and drug trafficking; an accelerating Third World arms race; and the potential of a reinvigorated Soviet military establishment that has undergone significant modernization efforts. The long list of hostilities in the developing world, since World War II, is testimony to the continuing existence of pre-colonial tensions and hatreds as well as the emergence of many new and equally powerful seeds of conflict. Today no region in the Third World is free of civil or national conflict. The armed conflicts in El Salvador, Cambodia, Angola, Mozambique, Afghanistan, and the Spanish Sahara are only the most visible. Other conflicts, like the Arab - Israeli, Iraq - Iran, and India - Pakistan, are only quiet for the time being.<sup>4</sup> These tensions are propelling the Third World into the same type of arms race that the U.S. and the Soviet Union felt compelled to undergo following World War II. As with the postwar East - West tensions, imbalances in military capabilities inevitably spur the attainment of a "balancing

weight" in the form of weapons of mass destruction (chemical, nuclear and biological).<sup>5</sup> But unlike the superpowers, the developing nations have not been through the searing experience of two world wars and may be more likely to use their growing inventory of advanced weapons, especially in a preemptive strike role. Israel's air attack on a nuclear reactor in Iraq in 1981, in an attempt to forestall the alleged Iraqi atomic-weapons program, demonstrates the perceived need for preemptive strikes.<sup>6</sup>

The combination of population growth and weak economies will certainly accelerate the instability of the Third World. The next century will likely see a doubling of the present global population (five billion), with almost the entire increase coming in the developing nations. The increasing over-population of the Third World is making it extremely difficult for many of the governments to feed their people. A starving population will certainly support an insurgency. Additionally, the inadequate infrastructure, stressed environment and depletion of natural resources are hindering the economic growth and productivity of these countries, further promoting instability.<sup>7</sup> Central and South America are particularly burdened with weak economies, massive debts, poverty and ethnic rivalry. The violence and instability that result, hinder the development of economic growth and promote the emergence of military backed dictators, who rule by military rather than democratic means. For many developing nations, the military strength of a government may be the key to its survival. If forced to choose between economic development and military development, self-preservation takes over and the military strength of a nation is increased while its economic development and people suffer.

In addition to the instability caused by the population growth and weak economies comes the newer threats of terrorism, drugs and

religious fanaticism. The preamble of the 1980 Iranian constitution asserts that one of the missions of the Islamic Republic is, "to extend the sovereignty of God's law throughout the world."<sup>8</sup> The Ayatollah Khomeini often said that the Islamic Revolution is endangered by many enemies. The U.S., whom he labeled as the "Great Satan", is certainly high on the list. Khomeini made it incumbent upon the Muslims to fight against these enemies to "defend the faith."<sup>9</sup> The post-Khomeini leadership has had no alternative but to accept Khomeini's view of the world. Given the likely acquisition of weapons of mass destruction in the near future, the Shi'ite Muslims could pose serious threats to U.S. interests worldwide. Besides religious terrorism, incidents of political terrorism continue to occur. The Pan Am flight destroyed by a bomb over Lockerbie, Scotland (killing all 259 passengers aboard), provides a recent example of the lethality of the terrorist act. How will the U.S. respond to a terrorist threat or act that employs the use of a weapon of mass destruction? Combating terrorism is likely to remain a vital Army mission. Finally, the economic and military power of the drug lords, in some of the South American countries, have threatened the stability of the governments of these countries. Sometimes, the profits from the drug trade are even used to support insurgencies that threaten the democracy of a region.

The U.S. is also directly threatened by drug trafficking, especially considering the fact that Americans consume 60% of the world's illicit drugs, and annual sales in the U.S. exceed \$140 billion (almost double the U.S. Army budget). Former President Ronald Reagan stated, "that illicit narcotic trafficking is a greater threat to national security . . . than the threat posed by international terrorists or any armed conflict short of war with a major power."<sup>10</sup> With the tremendous profits associated with drug trafficking, the drug lords will

certainly continue to get state of the art weapons, like the advanced air defense weapons and precision guided munitions which are currently available in the world market, to defend their interests. While the U.S. military is currently involved only in drug interdiction, military assistance to friendly democratic governments under siege from powerful drug cartels, may be required in the near future. As the U.S. steps up its campaign against drugs, the danger to American citizens will grow. The increasingly sophisticated threat posed by drug traffickers is likely to require U.S. power projection in the 21st Century.

As mentioned earlier, the instability in the Third World has spawned a virtual arms race among the less developed countries. In the past, the developed countries have been very effective in controlling arms sales, especially the modern, sophisticated weapons, mainly because the Third World countries have been unable to produce modern weapon systems or to get what they wanted from developed countries without strings attached. Additionally, most of the weapons sold were a technological generation old, consisting of World War II surplus or systems rendered obsolete by the fielding of more modern weapons. However, with the increasing demand for modern weapons and the hard currency from oil sales available to many Third World countries, the developed countries have moved to selling even the most modern weapons to the Third World. The increasing number of industries and corporations moving into the arms business indicates that this is a main channel for economic expansion. Arms sales are now big business and affect the economic well being of many developed countries. The pressure to export modern arms is especially strong in Europe. For the European arms industries, domestic demand is insufficient to absorb the costs required to justify the investments. European countries have been completely pragmatic in their export policies, placing few political

restraints on arms sales.<sup>11</sup> As with any capitalistic venture, with increased demand comes the increase in supply. Additionally, the reduced tensions in Europe will reduce the demand for arms by many Western countries and further glut the arms market. More weapons at lower prices will become available for sale to the Third World. Also, there are an increasing number of nations with the capability of developing, producing, deploying and exporting an unprecedented range of military capabilities. This will continue to increase the lethality of the conflicts throughout the world. Over a dozen Third World countries now produce and export sophisticated weapon systems from fighter aircraft and main battle tanks to surface-to-air missiles and long-range ballistic missiles.<sup>12</sup>

The economics of arms sales has also had a significant impact on the Soviet Union. "They have greatly expanded their sales to the Third World for purely economic reasons."<sup>13</sup> The Soviets have been largely unsuccessful in penetrating foreign markets with their nonmilitary manufactured goods, due to quality and competition problems. Some studies suggest that over 50% of their total hard currency earnings now come from arms sales.<sup>14</sup> The Soviet Union is the leading exporter of arms to the developing world. In the past eight years, they have exported to the Third World: over 8,000 main battle tanks, 14,000 light armored vehicles, 20,000 artillery pieces, 2,600 supersonic aircraft and 32,000 surface-to-air missiles.<sup>15</sup> The large market for arms sales also helps the Soviet armed forces turn over old inventory as they modernize their force structure. However, in recent years, Third World clients have demanded the most up-to-date equipment available. So the Soviets have modified some of their most sophisticated new weapons, like the MIG-29, with less secret components, to meet the demand. This willingness to sell high-tech equipment at low prices and favorable

credit terms has contributed to the success of the Soviet Union in wooing away countries like Kuwait and Jordan from Western suppliers.<sup>16</sup> Because of the important role arms sales play in the Soviet economy, they must continue their vigorous arms sales program until a realistic substitute for arms sales is developed.

The final, least likely and most dangerous future threat to U.S. national interests continues to be the Soviet Union. Despite unilateral military force cuts, a reduced defense budget and a new willingness to negotiate seriously on arms control, the Soviet military remains the most powerful land force in the world.<sup>17</sup> Additionally, the Soviet strategic force projection capability includes at least six light-mechanized airborne divisions with the aircraft to lift two of these divisions at one time. The Soviet Union is continuing an extensive force modernization program that will increase the combat potential of their military forces. Their smaller, better equipped and better trained military will bring about a much more efficient military force. The U.S. military must consider future conflicts with the Soviets in any force modernization program. This is especially important when one considers that the reduction of forward deployed forces in Europe, puts even more emphasis on having a capability of quickly reinforcing Europe with strategically deployable, versatile, and lethal forces.

#### 21st CENTURY THREATS - SPECIFIC

The specific future threats to U.S. national interests worldwide can be discussed in three main groups: the militarization of the Third World with modern conventional weapons, the proliferation of long-range missiles, and the increasing availability of weapons of mass destruction. Currently, more than a dozen Third World countries have over 1,000 main battle tanks. Of the 16 Third World nations that have



or will soon possess ballistic missiles, ten of these nations are producing their own, with ranges generally between 500 and 1,800 miles.<sup>18</sup> While chemical and biological weapons are currently available for use in these ballistic missiles, all but two of the 16 nations have the technology needed to build nuclear warheads in the future. These military capabilities are likely to be encountered in 21st Century Third World conflicts and future strategic forces must be designed and equipped to minimize the effects of these weapons and forces.

The developing nations have undergone a dramatic qualitative and quantitative expansion in their conventional military forces. The most significant changes include a general mechanization of forces. The Soviets alone have exported over 22,000 tanks and armored vehicles in the past eight years. On top of the Soviet exports one can add the tens of thousands of armored vehicles exported to the Third World by China and the Western World, mostly from France, Britain and the U.S. And a more disturbing trend for the future is the production and exportation of armored vehicles, to include main battle tanks, by at least five Third World countries.<sup>19</sup> With over a dozen developing countries currently armed with over 1,000 main battle tanks, and little countries like Nicaragua with over 400 tanks and armored vehicles, U.S. strategic forces must be prepared and equipped to deal with these armored threats.

Along with the proliferation of armored vehicles comes the proliferation of the other modern conventional weapons. The Third World is now equipped with modern weapons previously expected only in a high intensity, European conflict. These weapons include helicopters, multiple rocket launchers, antitank weapons, electronic warfare weapons, sensors, intelligence systems, antiaircraft weapons, and artillery, with ranges that exceed our current airborne division's 105-mm howitzer. The antiaircraft weapons are of special concern to the airborne forces and

the air crews that must deliver them. As discussed earlier in the thesis, even the tiny island of Grenada had potentially effective air defense guns protecting the Point Salines airfield when the U.S. Ranger forces airdropped during Operation Urgent Fury. Had it not been for the poor siting and ineffective manning of the guns, the outcome of the airdrop could have been much different. The Soviets alone have delivered to the Third World over 32,000 surface-to-air missiles in the past eight years. China, the Western World and even some developing countries have also provided tens of thousands of antiaircraft guns and missiles to the Third World. It seems unlikely then that the forced entry of airborne forces, delivered by lumbering transport aircraft, to seize key airfields will even be possible in the future. The smallest of countries, with only a modest number of antiaircraft weapons, will surely concentrate them around the airfields in sufficient numbers to make airdrop on an airfield too costly. The loss of only 5% of the aircraft conducting an airborne brigade airdrop, two to four C-141 aircraft full of paratroopers carrying 250 to 500 personnel, would most likely label an operation as a failure in the eyes of the American public, regardless of the subsequent success of the operation.

Another significant conventional capability not normally considered when dealing with the Third World is the rapid increase in numbers of high performance aircraft. As with the other conventional weapons, the arms race has generated the requirement for many countries to increase or upgrade their aircraft inventories. The resulting proliferation of high performance aircraft has been remarkable, due again, largely to the willingness of the superpowers to sell firstline equipment to the Third World countries. The Third World now has access to almost the same quality of firstline aircraft as the superpowers. The Soviet sale of MIG-29s to India, Syria and Iraq and the French sale

of Mirage 2000s abroad, even before the aircraft were fielded in France, provides an indication of the quality of some of the Third World's air threat. The Third World is also building their own high performance jet aircraft, with India, Brazil, Egypt, Argentina, North Korea, Nigeria, Pakistan, Taiwan and South Africa currently producing and in many cases exporting high performance aircraft.<sup>20</sup> Of special concern is the relative ease with which these aircraft can be adapted into carriers of weapons of mass destruction. Iraq demonstrated the application of this technique by developing binary bombs capable of carrying thousands of pounds of chemical weapons. With aerial refueling of these fighter aircraft, a capability many of the Third World countries also now have, the ranges increase significantly.<sup>21</sup>

A more serious threat to an airhead or a beachhead in the future will be the ballistic and cruise missiles being acquired at an alarming rate by the Third World (see Table 5-1). For Third World countries, ballistic missiles are a ticket to higher political status. Missiles can turn a militarily marginal country into a major threat. The missiles are especially threatening because of the speed at which they travel, five times faster than a jet aircraft.<sup>22</sup> Until recently, most Third World missiles were limited in range. But in the Iraq - Iran war, Iraq modified the Soviet Scud missiles for use at ranges over 500 miles and in 1988, Saudi Arabia bought over 20 of the Chinese CSS-2 East Wind missiles with a range of 1,500 miles. A number of the Third World nations are now working on the development of more advanced missile systems with extended ranges. Since these missiles have limited military effects when armed with conventional munitions, it is generally felt that their development is primarily designed for the delivery of weapons of mass destruction.<sup>23</sup> Although significantly slower than ballistic missiles, cruise missiles and precision guided munitions are significantly more accurate and are also showing up in the Third World.

TABLE 5-1

CURRENT STATE OF PROLIFERATION IN THE DEVELOPING WORLD<sup>24</sup>

COUNTRY	CHEMICAL WEAPONS	NUCLEAR WEAPONS	BIOLOGICAL WEAPONS	BALLISTIC MISSILES	DELIVERY AIRCRAFT	SMART WEAPONS
China	YES	YES	*	YES	YES	YES
Israel	YES	YES	-	YES	YES	YES
Iraq	YES	*	YES	YES	YES	YES
Iran	YES	*	YES	YES	YES	YES
North Korea	YES	-	YES	YES	YES	YES
Syria	YES	-	YES	YES	YES	YES
Egypt	YES	-	-	YES	YES	YES
Libya	YES	-	-	YES	YES	YES
South Korea	YES	-	-	YES	YES	YES
South Africa	YES	*	-	*	YES	YES
Pakistan	*	YES	-	*	YES	YES
India	-	YES	-	*	YES	YES
Taiwan	YES	-	-	-	YES	YES
Argentina	*	*	*	*	YES	YES
Cuba	YES	-	-	-	YES	YES
Vietnam	YES	-	-	-	YES	-
Burma	YES	-	-	-	-	-
Afghanistan	*	-	-	YES	YES	-
Peru	*	-	-	-	YES	YES
Brazil	-	*	-	*	YES	-
Angola	*	-	-	-	*	-
Indonesia	*	-	-	-	*	-
Nicaragua	*	-	-	-	YES	-
Thailand	*	-	-	-	YES	-
Chad	*	-	-	-	-	-
El Salvador	*	-	-	-	-	-
Laos	*	-	-	-	-	-
Mozambique	*	-	-	-	-	-
Philippines	*	-	-	-	-	-
Chile	-	-	-	-	YES	YES
Saudi Arabia	-	-	-	YES	-	-

Notes: Yes - Currently stocks the weapons or are strongly suspected of having them.

\* - Significant research and development effort/significant procurement effort currently underway to acquire them.

- - No weapons on hand and minimum effort to procure them.

The ability to strike vital economic or military targets, such as airfields, ports, power plants, refineries, oil platforms and desalinization plants, with highly lethal conventional munitions can cripple an adversary and provide the attacker a decided advantage in a regional conflict.

The last group of specific future threats have already been alluded to; they are the weapons of mass destruction (chemical, nuclear and biological). These weapons are also the future threats that must be taken the most seriously. Any effort to modernize airborne forces must take into consideration the very real possibility that these weapons will be available in every region of the world within the next decade. For the developing countries, these weapons of mass destruction can be significantly cheaper than acquiring, sustaining and modernizing large conventional forces. This is the same logic the U.S. used following World War II, when nuclear weapons were used in lieu of conventional forces as a cheap form of defense. As is evident from Table 5-1, there are 14 Third World countries believed to have chemical weapons on hand now and another 13 countries that will likely have chemical weapons in the next ten years. The internationalization of the chemical industry (producing petrochemicals, fertilizer and insecticides), has put chemical arsenals within reach of the Third World and virtually out of any meaningful control.<sup>25</sup> With the increasing availability of long-range ballistic missiles and the abundance of aircraft capable of delivering chemical weapons, chemical warfare will almost certainly impact on U.S. power projection in the future.

Less likely to be encountered in the near future but more deadly than chemical weapons are the nuclear weapons that several Third World countries already have. Nuclear weapons are currently in the hands of countries that are, at this time, either allies of the U.S. or at least

not hostile to the U.S. However, as in the case with Israel, the U.S. could still become involved in a conflict where both chemical and nuclear weapons are used. The recent exchange of threats between Israel and Iraq indicates that such a conflict is possible. More disturbing is the significant effort countries like Iran and Iraq are putting forth in the pursuit of nuclear weapons. While nuclear weapons represent the ultimate in destructive capability, almost any nation will use their nuclear weapons if faced with otherwise certain defeat. Even more destabilizing is the idea that small, vulnerable countries like Israel, if threatened with nuclear destruction may feel compelled to strike first to destroy the threat and avoid destruction.

The final weapon of mass destruction may actually be the most lethal if not the most terrifying. Biological weapons are not weapons that rational countries would develop or use. Yet, a quick look at Table 5-1 indicates that four Third World countries currently possess biological weapons: Iran, Iraq, North Korea and Syria. The lethality of biological weapons can be illustrated by comparing them to VX nerve agent, one of the most deadly of chemical weapons. Anthrax, which is one of the easiest of biological weapons to produce, is 100 times more lethal per kilogram of payload than VX gas. And for botulinum toxins, the lethality is between 1,000 and 10,000 times more lethal than VX gas. As for the coverage provided by a biological weapon, while a one-megaton bomb (62 times the explosive force of the bomb dropped on Hiroshima) affects an area up to 300 square kilometers, one ton of a bacteriological agent would kill 50% of the people in an area as large as 10,000 square kilometers (almost four times the size of the state of Rhode Island).<sup>26</sup> What makes biological warfare even more terrifying is the idea that biological weapons can be produced using essentially drug store technology.

## 21st CENTURY THREATS TO AIRBORNE FORCES

So far, this chapter has identified many of the threats that the military forces in the future can expect to encounter. The real question for this thesis is, how will these threats impact on the use of airborne forces in the future and what can be done to modernize the airborne force to enable it to deal with these threats? The arms race of the Third World coupled with the reduction of forward deployed U.S. forces makes the development of a viable strategic force critical to the defense of the U.S. national interests. Potential ways to deal with these future threats will now be addressed.

The requirement for airborne forces to deal with armored forces and artillery fires is nothing new. The British 1st Airborne Division at Arnhem was blocked by a single mechanized battalion and delayed long enough for the mobile German reserves in the area to assemble and crush the airborne division. As Soviet Colonel A. F. Bulatov said in his article on combating airborne assault forces, "Combat experience showed that an assault even by insignificant forces, usually [a relatively small number of] tanks with artillery support, carried out [against an airborne assault] could lead to the defeat of numerically superior forces."<sup>27</sup> As was discussed earlier, the Soviet solution to this threat is to provide lethal antitank capability and mobility to every airborne squad with the BMD. The BMD was also designed to help the Soviet airborne deal with another conventional threat, artillery. As Colonel Bulatov explains, "with limited opportunities for hitting airborne assault forces [before the airdrop]. . . the basic burden of combating them shifted to the drop areas. The early preparations of artillery fire against such areas proved effective."<sup>28</sup> As the threat of indirect fire on the airborne forces increases, the need for mobility and armored

protection also increases. It is interesting to note that even some small Third World countries possess significant indirect fire capabilities. For example, Nicaragua currently has over 600 heavy artillery pieces.

Possibly the most significant threat to the use of airborne forces in the future comes from the proliferation of modern air defense weapons. With the increasing employment of these systems, by even the smallest countries, the U.S.' willingness or ability to airdrop anywhere near a concentrated air defense area is unlikely. The airborne forces will also lose a significant fire support capability in the AC-130 aircraft (Specter Gunship). Despite its advanced weaponry and electronic equipment, it is still a slow, vulnerable C-130 aircraft, exposed to sophisticated surface-to-air missiles. Unfortunately, the limited number of airfields available in the less developed countries, enables them to consolidate their air defenses around these airfields. The defense of these airfields is important to them, primarily for the protection of their high performance aircraft and helicopters which are extremely vulnerable while on the ground. Historically, these heavily defended airfields have always provided a serious problem to airborne forces. During World War II, under threat of invasion from Germany, the airfield defenses in the area of The Hague were significantly strengthened. "As a result, the Nazi airborne assault forces, dropped by parachute to capture the airfields of Falconburg, Eipenburg and Okenburg were almost completely destroyed."<sup>29</sup> The U.S. airborne mission of seizing and securing an airfield is currently their number one training priority. This dependence upon an airfield is based on the requirement for a large operational airfield to bring in, by airland aircraft, much of the airborne brigade's equipment and any follow-on reinforcing light infantry units. The helicopters are a critical part



of the airlanded equipment. Since the airborne (and light infantry) forces heavily depend on helicopters for tactical mobility and firepower, the airborne will continue to be tied to airfields until modernized. Airdroppable tactical mobility and firepower are needed to wean the airborne forces from their absolute dependence on airfields.

Still, the resupply of an airborne force in the future will likely require some smaller airfields, as will the evacuation of U.S. nationals or the withdrawal of the airborne forces upon completion of their mission. While the new C-17 aircraft will be able to airland oversized cargo into small austere airfields in support of the airborne forces, the importance of this limited strategic asset will likely limit its use to areas where the enemy threat is low. Therefore, the airborne forces must have the ability to drop away from the air defense threat, that will be protecting the airfields, and have the mobility and firepower to attack and seize the defended airfields from the ground. This tactical mobility can be used to seize many small airfields or a series of airfields in an effort to avoid the massing of forces or the positioning of forces at any one place too long. Several authors have postulated the need for small mobile forces on future battlefields. William S. Lind, for example, in his article "The Changing Face of War: Into the Fourth Generation," believes that future warfare will require a greater emphasis on maneuver, "Small, highly maneuverable, agile forces will tend to dominate."<sup>30</sup>

With the future Third World weapons discussed earlier in this chapter, it will be especially important to move quickly away from the drop zone after the airdrop. Even with air superiority during the airdrop, the increasing numbers of Third World high performance aircraft and attack helicopters are likely to penetrate the protective air cover if the location of the airborne force is known and fixed. However, the

most serious threat to fixed locations, as in seizing and securing an airhead or port, is the threat from weapons of mass destruction. With ballistic missiles that can reach over 1,500 miles, fly at over 2,000 miles per hour and carry chemical, nuclear or biological weapons, the more dispersed and mobile a force is, the more survivable it will be. Even with the capability to detect the launch of a ballistic missile, there is currently no system available to defend a force from ballistic missiles once launched. The Strategic Defense Initiative is suppose to destroy the faster more powerful intercontinental ballistic missiles in space. The funding for the development of an antitactical ballistic missile system in the U.S. is unlikely until the U.S. mainland becomes threatened by these shorter range ballistic missiles.<sup>31</sup> And while preemptive strikes on known missile sites can be used to eliminate some of the ballistic missiles that threaten an operation, the long ranges involved make the neutralization of all the sites unlikely. Political constraints may further restrict preemptive actions, especially where missile sites are located in other countries. As discussed earlier in this thesis, the main reason the Soviets developed the BMD for their airborne forces was to be able to use their airborne forces in a nuclear environment. The Soviets knew that "the large, static formations of airborne troops would make a tempting target for enemy nuclear forces. To survive, the desant [airborne forces] would have to remain dispersed and mobile, concentrating only for the assault."<sup>32</sup> With the need to move quickly, over all kinds of terrain, and to be able to function in the almost certain chemical environment of the 21st Century, the future airborne forces would seem to need an amphibious, mechanized vehicle with NBC filters and overpressure capabilities.

Another threat to the airborne is the threat from the Soviet Union. It is possible that U.S. and Soviet strategic forces could meet in the future in pursuit of mutually desired terrain or facilities of vital national interests. Obviously, the current configurations of these forces make such a confrontation undesirable from the U.S. perspective. It is also possible that the Soviet threat to NATO will reemerge at some point in the future. A sudden change in Soviet leadership or increased instability in the Warsaw Pact countries could undermine the stability and security of Europe. With the significant reductions in U.S. forward deployed forces in Europe, any future U.S. strategic force must be capable of rapidly deploying to Europe in support of NATO forces. These strategic forces must be capable of dealing with the modern mechanized forces of the Warsaw Pact. This need clearly dictates a requirement for mobile antitank and antiaircraft/helicopter capability. However, even if the U.S. strategic forces never directly fight Soviet forces, the modern Soviet military equipment exported to the Third World every year will almost certainly be encountered by any future U.S. force projections.

A less obvious threat to the airborne, but still one that must be considered in the modernization of the airborne forces, is the intelligence and electronic warfare (IEW) threat. The advantage of strategic surprise may no longer be possible with an airborne assault. Even the relatively short U.S. airlift to Panama last December was detected. The Panamanian Defense Force knew the aircraft were coming at least three hours before the airdrop. With the detection capability of satellites, it only takes a few minutes to identify and project a destination for a large formation of aircraft. Although most Third World countries do not have direct access to satellites, neutral or anti-U.S. countries with satellites may offer the information to the

target country. Additionally, the increasing technological advances by the Third World include use of long-range radars and sensors, night visions devices and electronic direction finding equipment. While tactical surprise may be possible, as long as airborne forces continue to be tied to major airfields, it will only take the alert of all air defenses on or near the airfields to defeat the U.S. airborne assaults. Unlike in the past, the airborne forces of the future must be prepared to conduct an operation knowing that the opposing forces know they are coming.

Finally, another indirect threat to the airborne forces, but one that should be considered in the modernization of the forces, is the loss of U.S. basing rights overseas. The stability of the U.S. basing presence will no doubt become more precarious. A number of the most vital facilities in Panama, the Azores, Spain, Turkey, Greece and the Philippines are in doubt. "Most of the major host countries face internal opposition to U.S. bases."<sup>33</sup> With the U.S. budgetary problems increasing, the funds available for the aid packages that have been used to encourage U.S. access to major ports and airfields are decreasing. The impact on the future airborne forces could be significant. With fewer airfields available to U.S. military aircraft around the world comes: the loss of intratheater airlift (within a theater of operations) which has been used to augment the strategic airlift and provide aerial resupply; fewer secure intermediate staging bases, which have been used to strategically move helicopters into a theater of operations; and less U.S. Air Force aircraft support, which has provided continuous air cover and close air support. The loss of overseas basing means that in modernizing the airborne forces: there should be more supplies airdropped in with the initial assault and that the airborne forces on the ground should be capable of transporting these supplies; there

should be less dependence on helicopters for tactical mobility and firepower; there should be less dependence on U.S. Air Force aircraft for firepower and air defense; and finally, there should be less planning to use the C-130 aircraft, with its limited ranges, in future airborne operations, especially for the airborne assault.

#### 21st CENTURY THREATS TO OTHER STRATEGIC FORCES

The future threats will also impact on the other strategic forces of the U.S. These forces include, the special operations forces, the light infantry divisions and the Marines. The special operations forces include the Special Forces Groups, the Ranger Regiment and the special Navy and Air Force units that support these operations. Because of the covert nature of these forces, and the generally small size of force used, the future threats will have less of an impact on these forces. The additional capabilities of these units, such as high altitude airdrop and low opening parachute deployment, enable these forces to avoid the strengths of the increasing threat and deploy into areas that would be inaccessible to large conventional forces. However, these forces are not designed and would not be used to deal with a significant conventional threat. The light infantry divisions, on the other hand, are suppose to be able to handle a Third World conventional threat. Unfortunately, these forces are limited in mobility and firepower, and are absolutely tied to a secure airfield for survival. Future Third World threats, for reasons discussed earlier in this thesis, may be able to prevent the deployment of the light infantry divisions in the near future. Like the light infantry divisions, the Marines are also very vulnerable to the future Third World threats.

Most of the future threats that impact on the airborne forces also impact on the U.S. Marines. With the continued mechanization of

the Third World, the amphibious landing of a Marine Expeditionary Unit (MEU), a battalion-size task force, is likely to meet more combat power than it is equipped to deal with. A single MEU is the only Marine unit that can be committed into combat in less than ten days. Although not as light as a U.S. airborne battalion, the MEU has only one tank platoon (5 ea M-60A1), 8 ea TOW antitank missiles and 32 ea Dragon antitank missiles to deal with the potentially significant future armored threat to the beachhead. Like the current U.S. airborne forces, the Marines are also foot mobile but have as a part of the MEU, nondedicated assault amphibian vehicles (12 ea LVTP-7s), which can move a reinforced company, and medium and heavy lift helicopters (12 ea CH-46s and 4 ea CH-53s), which can move another 1 1/2 companies by air. Although the Marines have some tactical mobility, they are tied to the beachhead just as the airborne forces have been tied to the airhead. Like an airhead, in the future a beachhead will be very vulnerable to long-range ballistic missiles carrying weapons of mass destruction. Unlike the airborne forces, providing they are modernized to operate independently of major airfields, the Marines will be unable to abandon the beachhead in the future, as it is their only link to their supplies on the ships.

The Third World technological advances in military equipment and intelligence are likely to impact on the Marines more adversely than on the airborne forces. With a strategic deployability speed of about 350 miles per day (versus the 13,000 miles per day of a C-141 aircraft), the Marines are likely to have a hostile reception waiting for them either enroute to the objective or when they arrive at distant objective areas. Unlike the past, when the U.S. had complete control over the seas, many Third World nations are rapidly developing a naval force and an anti-ship capability.

A recent Center for Strategic and International Studies report concludes, "The days in which one battleship could "face down" a small power navy have all but disappeared; . . . at some point in the foreseeable future, U.S. . . . freedom of passage will be actively challenged by regional [Third World] navies."<sup>34</sup> Key countries in the Third World are clearly aiming for control of the local seas. India already has 2 aircraft carriers, 6 guided missile destroyers, 15 antisubmarine warfare frigates and between 14 and 18 submarines (some nuclear powered). Brazil has also looked to the nuclear submarine option to project naval power. Their stated maritime goal is to "prevent any future enemy of Brazil from making use of the seas."<sup>35</sup> Not surprisingly, many other Third World countries are working to acquire nuclear-powered submarines. These submarines will present a special problem for U.S. naval forces in the future, when one considers the small number of antisubmarine ships and aircraft that the U.S. has spread throughout the world. Moreover, antisubmarine systems, which use sonar to detect submarines, are only marginally effective at ocean depths less than 600 feet. This makes significant parts of the Third World oceans, with depths less than 600 feet, particularly hostile to U.S. sonar systems.<sup>36</sup> The Soviets have provided over 300 ships to Third World countries in the past eight years. This number includes over 50 major surface combatant ships and 17 submarines.<sup>37</sup> Western countries are also selling shipping to the Third World. And further contributing to this expanding naval threat, several Third World countries now produce and export destroyers, frigates and submarines as well as hundreds of small patrol boats from which anti-ship missiles can be launched.<sup>38</sup>

Anti-ship missiles with excellent accuracy and extremely long ranges have been available for many years, over-the-counter, to any country that has had the money to buy them. For example, more than 2,800 French Exocet anti-ship missiles have been delivered to 29 different countries in the past ten years. These missiles, with a range in excess of 40 nautical miles, can be launched from aircraft, helicopters, all categories of ships and mobile coastal defense batteries. The Italian and French Otomat is also readily available and has a range in excess of 100 nautical miles.<sup>39</sup> The accuracy and lethality of these anti-ship missiles have been demonstrated on more than one occasion. During the Falklands War, April 1982, an Argentine aircraft delivered an Exocet missile which sank the British destroyer *Sheffield*, while the U.S. frigate *Stark* was heavily damaged by an Iraqi anti-ship missile during the Persian Gulf reflagging operation a few years ago. The slow speed of the amphibious shipping provides ample time for even the least developed countries to locate and engage the ships long before the amphibious assault is launched. With the continuing advances made in the anti-ship missiles, such as: supersonic speeds to reduce defensive reaction times; sea-skimming to reduce detection ranges; delayed radar activation to prevent early detection; and chemical and nuclear warheads for significant destructive capability, the future use of Marine forces in an amphibious assault role may be limited.<sup>41</sup>

Many would argue - especially in the Navy - that there is little chance of a U.S. carrier task force being badly bloodied by a Third World adversary. One only needs to look at the Falklands War, where six major ships were sunk and many others damaged, to see what land based air attacks alone can do.<sup>42</sup> The Argentine air attacks were effective against the British fleet as the British did not have a large carrier



task force that could provide them the long-range air cover they needed. However, even with the air cover provided by a U.S. carrier task force, the land and sea launched anti-ship missiles and submarine threats, could still make the the cost of moving a U.S. task force close enough to a beach to launch an amphibious assault prohibitive in the future. The Marines' effort to develop over-the-horizon air-cushioned amphibious assault craft may not overcome these long-range future threats.

The future threats identified above have a special impact on the viability of the current Marine pre-positioning force operations. The three maritime pre-positioning force (MPF) squadrons that make up the pre-positioning force are located, one each, in the North Atlantic, the North Pacific and the Indian Ocean. Each squadron has four or five merchant vessels loaded administratively with the heavy equipment from a MPF Marine brigade. The concept is to secure a major port or beach and then bring in the MPF ships to off-load the equipment. Simultaneously, a large airfield must be secured, near the port or beach where the equipment is to arrive, so that the 250 strategic airlift aircraft (three times the number required to transport an airborne brigade), transporting the MPF brigade's troops and light equipment can be airlanded. If the airfield is not in the same vicinity as the port or beach, the personnel must then be transported to the port or beach to linkup with their equipment. Finally, the equipment must be administratively off-loaded from the merchant ships and readied for transfer to the troops. There is no doubt that the 16,500 man MPF brigade, armed with 53 ea M-60A1 tanks, 36 ea artillery pieces, 96 ea TOW antitank weapons, 78 ea fixed wing aircraft and 68 ea helicopters has credible offensive punch.<sup>42</sup> And without pre-positioning, this brigade would require 4,500 strategic airlift sorties and many weeks to

deploy. What is in doubt is the survivability of the MPF ships in the face of the increasing Third World anti-ship threat. Even more questionable is the requirement for a single Marine battalion to seize a beachhead or port and a major airfield, and then secure them both for the ten days required to off-load and prepare the MPF brigade for combat operations. William S. Lind predicts that in future conflicts, "major military facilities such as airfields, [ports,] fixed communications sites and large headquarters [will] become rarities because of their vulnerabilities."<sup>43</sup> In the ten days the MPF brigade requires to deploy, the future Third World forces should have little difficulty destroying the initially committed Marine battalion with conventional forces or rendering the port, beach or airfield unusable with chemical ballistic missiles.

The vulnerability of the Marine forces is yet another threat to the airborne forces of the future. In the joint operations of the past, like Grenada, Marine forces complemented the airborne forces with their additional firepower in the form of Marine and Navy aircraft and additional ground combat power in the form of a MEU. With the increased threat to these forces, comes the likelihood that in the future, the airborne forces will be forced to conduct offensive operations independent of the Marines. The strategic speed of the airborne is 40 times that of the ship-bound Marines. With only a MEU available for amphibious operations in the first ten days of a crisis and the potential requirement for force projection inland, there may be little choice but to respond initially with the airborne forces, in conjunction with the Air Force and readily available Navy forces. As Colonel Peter J. Boylan in his article, "Power Projection, Risk and the Light Force," said, "It seems plausible that, in situations where the use of military force is being considered. . .the risk involved in applying that force

may be smallest at the very onset of the situation. . . . This early response, . . . is likely to have a singular inhibiting effect upon the potential adversary and may tend to paralyze his initiative and restrict his options."<sup>44</sup>

#### CONCLUSION - FUTURE THREATS AND THEIR IMPACT ON THE AIRBORNE FORCES

As with any military operation, a mission analysis and an analysis of the enemy are critical to the success of a mission. For the future airborne forces, the mission will probably remain the same: to deploy rapidly anywhere in the world and be prepared to conduct combat operations to protect U.S. national interests. The enemy, however, is changing significantly. This chapter has identified many of the threats that must be considered in future force projection missions. The mechanization of the Third World forces, the proliferation of ballistic missiles and the availability of weapons of mass destruction are only a few of the future threats that the modernized airborne forces will be expected to deal with. With the increasing instability of the Third World, the U.S. will almost certainly be involved in a situation that will require a deployable, versatile and lethal airborne force that can conduct combat operations in this future threat environment and successfully accomplish their mission.

## CHAPTER FIVE ENDNOTES

- <sup>1</sup> GEN John W. Foss, "The Future of the Army," Army Times, March 5, 1990, p. 14.
- <sup>2</sup> Debra van Opstal and Andrew C. Goldberg, Meeting the Mavericks: Regional Challenges for the Next President (Washington, D.C.: The Center for Strategic and International Studies, 1988), p. xii.
- <sup>3</sup> GEN Carl E. Vuono, The U.S. Army: A Strategic Force for the 1990s and Beyond (Washington, D.C.: U.S. Army White Paper, Jan. 1990), p. 8.
- <sup>4</sup> Senator John S. McCain III, "Proliferation in the 1990s: Implications for U.S. Policy and Force Planning," Strategic Review, Summer 1989, p. 12.
- <sup>5</sup> Ibid., p. 18.
- <sup>6</sup> "Iraqi Leader Threatens Attack With Nerve Gas," Kansas City Star, 3 April 1990, p. A-1.
- <sup>7</sup> GEN Carl E. Vuono and Secretary of the Army Michael P. W. Stone, The Posture of the U.S. Army - Fiscal Year 1991 (Washington, D.C.: Presented to the Second Session, 101st Congress), p. I-5.
- <sup>8</sup> Michael Dunn, "Until the Imam Comes: Iran Exports Its Revolution," Tactics and Technologies, 1987, p. 155.
- <sup>9</sup> Ibid., p. 156.
- <sup>10</sup> Mark P. Hertling, "Narcoterrorism: The Unconventional War," Military Review, March 1990, p. 17.
- <sup>11</sup> Augusto Varas, Militarization and the International Arms Race in Latin America (Boulder, CO: Westview Press, Inc., 1985), pp. 46-47.
- <sup>12</sup> Ibid., pp. 65-67.
- <sup>13</sup> Steven Zaloga, "Soviet Arms Exports: Cutbacks Ahead?" Armed Forces Journal, Dec. 1989, p. 20.
- <sup>14</sup> Ibid.
- <sup>15</sup> Department of Defense, Soviet Military Power: Prospects For Change (Washington, D.C.: Government Printing Office, Sept. 1989), p. 23.
- <sup>16</sup> Zaloga, p. 20.
- <sup>17</sup> United States Army, Army Focus (Washington D.C.: HQDA (DACS-DMC), Nov. 1989), p. 7.
- <sup>18</sup> "A New Missile Threat," National Review, Aug. 1988, p. 15.
- <sup>19</sup> Varas, p. 67.
- <sup>20</sup> Varas, p. 66. Also, Opstal and Goldberg, p. 11.

- 21 McCain, p. 18.
- 22 Douglas Stanglin and Richard Chesnoff, "The Missile Trade in Launch Mode," U.S. News & World Report, 25 July 1988, p. 32.
- 23 McCain, p. 16.
- 24 McCain, pp. 11 and 17.
- 25 Opstal and Goldberg, p. 14.
- 26 McCain, p. 15.
- 27 COL A. F. Bulstov, "Combatting Airborne Assault Forces," (JPRS-UMJ-88-010) VOYENNO-ISTORICHESKIY ZHURNAL, 4 April 1988, p. 27.
- 28 Ibid.
- 29 Ibid., p. 26.
- 30 William S. Lind, COL Keith M. Nightengale, et al., "The Changing Face of War: Into the Fourth Generation," Military Review, Oct. 1989, pp. 4-5.
- 31 Stanglin and Chesnoff, p. 37.
- 32 Edward N. Luttwak, Historical Analysis and Projection for Army 2000, Volume 1, Part 17, Soviet Airborne Forces 1930-1983, (DTIC # B085085, March 1983), pp. 70-71.
- 33 Opstal and Goldberg, p. 23.
- 34 Ibid., p. 11.
- 35 Ibid., p. 12.
- 36 Ibid.
- 37 Soviet Military Power, p. 23.
- 38 Varas, p. 67.
- 39 Guy de Bakker, "Anti-Ship Missiles: A Market Lull," International Defense Review, Feb. 1990, pp. 156-157.
- 40 Ibid. pp. 156-159.
- 41 James F. Dunnigan and Austin Bay, A Quick and Dirty Guide to War (New York: William Morrow and Company Inc., 1985), p. 250.
- 42 United States Army Command and General Staff College Student Text 100-1, Navy and Marine Corps (Fort Leavenworth, KS: CGSC, June 1989), p. 11/18.
- 43 Lind, Nightengale, et al., p. 5.
- 44 COL Peter J. Boylan, "Power Projection, Risk and the Light Forces," Military Review, May 1982, p. 64.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

We are certain that the design requirements of a future Army must start now so that we will have a view and guiding light of our future requirements. During this period of change we can then shape the units of the Army to meet our future force, as well as providing a focus to our future equipment needs. The greatest mistake we could make is to take our Army of the 70's and 80's into the 21st century.

GEN John W. Foss, Commander, TRADOC<sup>1</sup>

What worries me is that instead of the light, mobile, readily deployable high-tech military that we're going to need, we'll just get proportionate cuts in everything. . . . You cut your tanks a third and I'll cut my planes a third, [is] not a recipe at all for defense in the 21st century.

Senator John S. McCain III, Ranking Minority  
Member, Senate Armed Services Committee.<sup>2</sup>

### PURPOSE OF THIS THESIS

This thesis critically analyzes the evolution of U.S. airborne forces by conducting a comparative analysis of the U.S. and Soviet airborne forces' development and capabilities. Current U.S. and Soviet aircraft and equipment capabilities and the projected future threat limitations to airborne forces have also been analyzed. It provides recommendations for the modernization of the U.S. conventional airborne forces based on the requirement for a successful forced entry capability in a future threat environment. These recommendations are grounded on several essential airborne concepts derived from a combination of historic "tried and true" airborne principles. Finally, this thesis provides an option for consideration in the restructuring of the

Army as it transforms itself from what Secretary of Defense, Richard B. Cheney calls, a "heavy, "European-oriented . . . force unsuitable for the flexibility demands of the 21st century;" into what the Army's Chief of Staff, Carl E. Vuono believes will be, "versatile, deployable and lethal. . . [with] an unquestionable ability to conduct an opposed entry into combat in the defense of vital interests anywhere."<sup>3</sup>

#### THE REQUIREMENT FOR AIRBORNE FORCES

Although not detailed in this thesis, a rapidly deployable, strategic force with a forced entry capability is now, and will remain the cornerstone of America's force projection capability. As the Undersecretary of Defense, Paul D. Wolfowitz has said, "there is little doubt that the U.S. will remain the guarantors of order in many parts of the world [but] will have to discharge these responsibilities. . . with less forward basing."<sup>4</sup> It is this ability to strategically project power, both firepower and manpower, that will guarantee the security of our worldwide interests. However, "the remote inland location of the many areas of vital national interest and the requirement for speedy strategic deployability," as Secretary of Defense Richard B. Cheney says, "can only be accomplished by aerial delivery."<sup>5</sup> Within the defense structure, only the airborne forces are capable of strategic airlift and forced entry. By having this forced entry, force projection capability, the airborne forces also provide the nation with another form of deterrence, to be used as an element of national power.

#### EVOLUTION OF THE AIRBORNE FORCES

The U.S. and the Soviet Union have taken strikingly different paths in their development of airborne doctrine, organization and equipment. The reason for these differences seems to start with the

deviation in the perceived usefulness of the airborne forces. From the early days of airborne development, the Soviets have always considered their airborne forces a critical component of the third dimension of offensive maneuver. As such, they have developed their war fighting concepts and then modernized their forces in a manner that has included their airborne forces. The resources needed to develop and modernize their forces have been made available because of the importance the Soviet government has put on the military. Their system - whatever the overall inefficiencies - has enabled them to develop and field, modern, effective military equipment. They have also resolved, in ways favorable to the airborne forces, interservice rivalries. It is often touted that the Soviets have spent significantly more than the U.S. on defense (more than twice as much, as measured in the percentage of the Gross National Product). In fact, using 1984 numbers, some analysts contend that the U.S. spent more than the Soviets on defense in total dollars and double the budget expenditures per man.<sup>6</sup> Unlike the Soviets, the U.S. has never embraced the airborne concept. Caught off guard by Germany's use of airborne forces in World War II, the U.S. trained the soldiers to jump out of airplanes but never trained the military leadership to visualize the true potential of the airborne concept. Even today, the foot mobile, lightly armed airborne forces are equipped with a 35 year old parachute and supported by a 30 year old light tank. This would indicate that they are still not part of the Army's main effort.

#### U.S. AND SOVIET AIRBORNE FORCES COMPARATIVE ANALYSIS

This comparative analysis of the U.S. and Soviet airborne forces focused on the current capabilities and limitations of these forces, while comparing their missions, force designs and equipment. It further highlighted the significant difference in the orientation of these



forces (see chapter four). The Soviets are oriented toward offensive, strategic missions against an armored opponent with the possibility of chemical or nuclear weapons use. This orientation has dictated their heavy emphasis on direct fire firepower, tactical mobility and dispersion. The result is an airborne force that is over six divisions strong, yet compact, deployable lightly-armored, mobile and lethal. Meanwhile, the U.S. seems to have remained fixed on the defensive, World War II, mission of seizing and securing terrain, like an airhead, against minimal enemy air defense, artillery, aircraft and armor. In fact, the entire concept of the light divisions, as a strategic force, is tied to this mission. The light fighters are expected to airland into this "seized and secured" airfield, and then conduct whatever type of operation a foot mobile, lightly armed division can accomplish. As a result of this defensive mentality, the U.S. airborne forces have remained infantry heavy, foot mobile, armed with mostly man portable weapons and supported heavily by indirect firepower, helicopter support and Air Force aircraft. This remains the case despite a number of studies which indicate that weapons systems are significantly more decisive than a large number of infantryman.<sup>7</sup> Finally, the strategic deployability of the light-mechanized Soviet airborne forces is actually better than the infantry heavy U.S. airborne forces. The Soviets have designed their airborne force to maximize its deployability, by moving more of the supplies with the combat forces and designing their equipment with multiple capabilities.

#### THE FUTURE THREATS AND THEIR IMPACTS ON AIRBORNE FORCES

While the current U.S. airborne force is capable of conducting combat operations effectively in many parts of the world, as demonstrated in Grenada and Panama, the future threats are likely to significantly restrict their use, and the use of the other five

light/air assault divisions. The militarization of the Third World, fueled by the liberal arms sales of the developed countries, has resulted in a virtual arms race. The proliferation of modern conventional weapons, long-range ballistic missiles and weapons of mass destruction demand the modernization of the airborne forces if they are to survive in the increasingly lethal Third World environment. While a detailed discussion of the future threats to the airborne is provided in chapter five, an outline of the significant threats and potential corrective actions follow:

THREAT	CORRECTIVE ACTION
1. Tanks, armored vehicles;	Vehicle mounted gun or heavy crew weapons. Mobile, long-range antitank systems.
2. Long-range arty, MLRS;	Mobile forces. / Light armored vehicles. Mobile artillery.
3. Helicopters, aircraft;	Long-range air defense systems. Mobile forces.
4. Sensors, Intelligence;	Mobile forces. / Mobile reconnaissance. Airdrop where unexpected.
5. Heavy air defense threat;	Mobile ground forces with offensive punch. Airdrop offset from objective.
6. Ballistic missiles;	Mobile forces. / Dispersed logistics. Multiple, dispersed drop zones.
7. NBC attack;	Mobile forces. / Decon capabilities. NBC overpressured vehicles.
8. Soviet equipment;	Modern antitank capability, mobility. Modern air defense capability.
9. Loss of air cover;	Air defense systems. / Mobile forces. Mobile, indirect firepower.
10. Loss of AC-130 gun ship;	Mobile, indirect firepower. Less dependence on Air Force aircraft.
11. Loss of basing rights;	Less dependence on Air Force Support. Less dependence on C-130 aircraft.
12. Loss of airfield;	Mobile forces. / 100% airdroppable DRB. Less dependence on helicopters/aircraft. Carry more supplies in initial assault. More airborne forces for reinforcement.

## RECOMMENDATIONS

There are potentially hundreds of recommendations to be made for the modernization of the U.S. airborne forces but I will focus the recommendations of this thesis on three main areas. These areas are: the concepts upon which future forces can be built, the missions that the airborne forces can be expected to accomplish, and the key equipment needed by the future airborne forces to accomplish these missions.

## FUTURE AIRBORNE CONCEPTS

Based on the analysis and evidence presented in more detail throughout this thesis, the following recommendations for future airborne concepts are highlighted below.

1. Airborne forces must be designed, equipped and used for operational or strategic level missions. The tactical use of airborne forces has been assumed, de facto, by air assault forces. The resources and time required to conduct a successful airborne assault, make tactical missions an inefficient use of valuable assets. Future airborne forces should be designed and equipped with a focus on strategic requirements and missions.

2. Airborne forces must be designed and equipped to conduct offensive operations. While the strategic mission may require the "defense" of national interests, future threats will likely dictate the airdrop be conducted some distance away from the heavily air defended objective. The subsequent attack to the objective, on the ground, without significant Air Force and helicopter support, against modern mechanized forces will require an offensively designed and equipped force.

3. Equipment providing airborne combat power and tactical mobility must be 100% airdroppable. The trend in the U.S. airborne forces seems to be just the opposite of this. Future forces must have a true forced entry capability. As discussed in chapter five, the future threat will be capable of neutralizing an airfield or otherwise preventing the airlanding of aircraft. This can be a "show stopper" if forces are not designed to accomplish the mission without airlanded equipment or airlanded reinforcements. This concept has a far reaching impact on the viability of both the use of the light divisions and the Marines' pre-positioning force.

4. Airborne forces must have 100% ground tactical mobility. As FM 100-15 says, "Even meticulously constructed field fortifications offer limited protection against modern weapons such as cluster bomb munitions, chemical weapons and fuel air explosives."<sup>8</sup> Besides survivability, the offensive power of maneuver is essential for the airborne forces, who are normally the smaller force attacking a larger one. An operational research study conducted in 1987 reveals that of 72 battles examined, covering combat from 1941 to 1982, 83% were won by maneuver alone versus 17% won by firepower.<sup>9</sup> Finally, if the airborne forces are to ever function as a strategic or operational reserve in the future, they must have ground tactical mobility. MG Christoph-Adolf Fuerus, former commander of the German paratrooper force has said, "Operational reserves must be superior to the aggressor with regards to speed and mobility. . .if they are to achieve results at the decisive point."<sup>10</sup>

5. Airborne forces must have significant, organic, vehicle-mounted tank killing capability. With the future Third World threat consisting of thousands of armored vehicles, many of them modern Soviet tanks, the airborne force cannot survive with their heavy dependence on

man-portable antitank weapons. The low kill probabilities of these systems against tanks invites another Task Force Smith encounter in the not so distant future. Additionally, for the reasons stipulated above, the dependence on helicopters, even very small, C-130 airtransportable ones, to shoulder the responsibility for killing tanks, could be a deadly mistake in the future. Finally, if the U.S.' forward deployed forces ever need rapid reinforcement, the reinforcing airborne forces must be capable of dealing with modern Soviet armored vehicles.

6. Airborne forces must be designed and equipped to be able to conduct offensive operations in an NBC environment. Weapons of mass destruction are very likely to be encountered in future Third World conflicts for the following reasons: these weapons are much cheaper than arming and maintaining a large conventional force; these weapons are easy to acquire (see chapter five); delivery of these weapons is becoming possible for many countries, with the proliferation of ballistic missiles and high performance aircraft; and these weapons are very effective against point, stationary targets and can render a port or airfield unusable in a matter of minutes. Of these weapons, the chemical weapons are the most likely to be encountered. Any future airborne vehicle must have NBC filtration and overpressure capabilities built-in.

7. Airborne forces must be designed and equipped to be self sufficient. The dependence on Air Force aircraft or helicopters for firepower, air defense, antitank fire or tactical mobility, will prevent or severely limit the use of airborne forces anywhere near a high air defense threat or where forward basing is limited. The helicopters are not only at risk from the air defense, but also from the requirement to secure an airfield where they can be airlanded, reassembled and resupplied from. While there will be many situations where Air Force

aircraft and helicopters can provide the much desired support, their loss should not prevent the accomplishment of the mission.

8. It is critical that airborne equipment be designed specifically for the strategic use of airborne forces. The traditional method of designing equipment for everyone and then forcing it on the airborne forces has resulted in the inefficient use of aircraft and a poorly equipped airborne force. By designing equipment to be airtransported and airdropped, the lift capabilities of the limited strategic aircraft can be maximized. Just testing a piece of equipment for airdrop capability overlooks many of the critical limitations of airtransport. If equipment is not combat ready and combat loaded when it hits the ground it is not what the airborne of the future needs. Additionally, dimensions on an aircraft are limiting. If equipment is designed one inch too long or two inches too wide it may still be airdroppable or airtransportable but the design may prevent the optimum use of the limited number of strategic airlift aircraft. For example, the 5-ton truck with a 96 inch axle-width was supposed to fit with two, 5-ton trucks, side-by-side in a C-17 aircraft. In fact, the internal dimensions of the C-17 were specifically designed for this requirement. However, in 1987 the industry standards changed from a 96 inch axle-width to 102 inch axle-width. This means that many of the 5-ton trucks and vans now being produced are three inches too wide to be loaded side-by-side on the C-17. The 96 inch axle-width vehicles can still be produced but at a cost significantly higher than the 102 inch trucks the industry is now tooled up to produce. While still airtransportable, this airtransport oversight will certainly impact on the number of aircraft required to move these vehicles. Small design changes or oversights like this, can significantly increase the numbers of aircraft

required to move a unit and indirectly reduce the combat power this nation can project. Finally, by designing equipment with dual capabilities, such as the 2S9, howitzer/antitank gun, more combat power can be projected in fewer aircraft.

9. Sufficient combat power must be available in the future airborne forces to deal with the increasing requirements and threats. One Division Ready Brigade (DRB), which is the current airlift capability of the Air Force, is not enough combat power to deal with the future threats. The requirement should be for at least two full strength DRBs to be airdropped in one lift. The airborne forces must be redesigned to be smaller, more mobile, more lethal and more deployable. A reduction in the size of a brigade and an increase in the requirement for airdrop qualified crews, the limiting factor in the one DRB airdrop requirement, would enable the U.S. to strategically project significantly more combat power in the future.

#### FUTURE AIRBORNE MISSIONS

The Department of Defense Biennial Planning, Programming and Budgeting System (BPPBS) manages the resources that are needed for the modernizing of the military. The planning phase of the BPPBS requires both an evaluation of the future threats and an update of the national military strategy. The resource requirements, submitted to the DOD by the Army, are based on these future threats and the missions assigned to the Army are in accordance with the updated national military strategy. Now is the time to reevaluate the missions assigned to the airborne forces, in light of the future threat, and confirm the Army's and the Nation's needs for a versatile, lethal and rapidly deployable force, with a forced entry capability. As detailed in chapter four, the current missions assigned to the airborne forces are essentially the

same missions assigned in World War II: static, defensive, tactical and secondary in nature. Future airborne forces will be required to accomplish much more. The following missions are provided as recommended changes to the current airborne missions in an effort to impact on the BPPBS. The requirements drawn from these missions can be used to design and equip the future forces of the Army. While some of these missions can be combined, they are expanded here to more clearly identify what these forces will be required to accomplish.

1. To quickly respond by airdrop, with sufficient combat power to safeguard vital national interests worldwide.
2. To provide military support, peacekeeping or security to allied governments worldwide.
3. To project significant military power worldwide in a show of force or demonstration.
4. To seize major political, administrative and economic centers worldwide in support of national policy.
5. To conduct or support the quarantine or blockade of other nations in support of national policy.
6. To seize and secure or destroy, operational or strategic chokepoints (straits, canals, bridges, beaches, peninsulas and other key terrain), islands, airfields, naval bases, ports or other military or civilian targets in support of national aims.
7. To respond worldwide as the Nation's strategic reserve, to include reinforcement of forward deployed forces.
8. To counter or interdict the enemy's use of operational or strategic reserves.
9. To open a new front by attack of an enemy flank or rear.
10. To attack and destroy key enemy weapons, command posts, lines of supply or installations in the enemy's rear.
11. To assist in the encirclement and destruction of large enemy groupings.
12. To conduct noncombatant evacuation operations.
13. To support U.S. civil authorities as directed.



## FUTURE AIRBORNE EQUIPMENT

The equipment required by the airborne forces of the future is radically different from the equipment currently available in the U.S. airborne units. The Soviets have demonstrated, in the fielding of the BMD, the 2S9 howitzer and other specialized airborne equipment, that the technology is currently available to produce the future U.S. airborne equipment, now. In equipping the airborne force of the future, the airborne concepts and future missions (detailed above), as well as the future threats must be addressed. Some of the general characteristics that must apply to this equipment include airdrop ability, a common chassis, amphibious capability, NBC filtration and overpressure and light armor. Some of the specific equipment requirements follow:

1. An airborne amphibious infantry fighting vehicle (AAIFV):

This vehicle will be the backbone of the airborne and should be sized to allow the airdrop of three AAIFVs from a C-141, and four from a C-17. The pressure to choose a short term fix like a modified M-113 armored personnel carrier or the "under development" LAV-105, which the Marines are working on, must be resisted. The move to replace the obsolete M-551A1 Sheridan with the LAV-105 does not address the need for tactical mobility by the airborne forces. Additionally, there are some potentially serious problems with the LAV-105. The high profile of the LAV-105 (over eight feet) may restrict the firing of the gun over the sides of the vehicle, and there is serious doubt that the LAV-105 will be able to make the tip-off curve limit of the C-130 or C-141. Also, the rigged weight of the LAV-105 (over 30,000 lbs) limits the number of LAV-105s transportable by C-141 to two.<sup>11</sup> More importantly, if the airborne division is outfitted with the LAV-105, it may be another 30 years before the funding is available for a real airborne light tank.

Now is the time to design a fighting vehicle for the airborne, and probably the light infantry divisions, analogous to the M-2 Bradley infantry fighting vehicle that was designed for the forward deployed forces in Europe. A detailed list of recommended requirements for the AAIFV is attached at appendix B.

2. A dual purpose antitank gun/self-propelled (SP) howitzer: Like the 2S9 (SP) howitzer, a dual capability howitzer will provide some much needed flexibility to the airborne forces while decreasing the overall lift requirements. If an effective antitank gun were developed as a part of this system, the need for a light tank in the airborne might be eliminated. Additionally, the system, as with most of the combat vehicles in the future airborne force, should be built on the same chassis as the AAIFV.

3. An airborne multiple launch rocket system (AMLRs): The shock effect of a MLRS would greatly enhance the massed fires capability of the airborne forces and reduce the requirement for some of the 144 mortars or howitzers currently in the division.

4. An airdroppable helicopter: Helicopters provide excellent mobile firepower and reconnaissance to a ground force. A small airdroppable helicopter would be capable of supporting an airborne assault immediately, without tying the force to the seizure and security of an airfield. Although, this is one piece of equipment where there is a question of technical feasibility, there is little indication that a concerted effort has ever been made to achieve this capability.

5. Multiple variants of the AAIFV: To support the combat operations of a mobile self-sufficient strategic force, multiple variants of the AAIFV are needed. These variants would transport and protect the following systems and units: air defense; engineers; command and control; electronic warfare; chemical decontamination and smoke

generation; reconnaissance; support, especially one with a platform moving capability; and fuel and water transporters.

#### RECOMMENDATIONS FOR FURTHER STUDY

There are several areas that require additional study to assist in the modernization of the airborne forces. I will identify a few of the areas that should be addressed in an open-minded and unbiased manner. The decisions rendered in the next five years will determine the ability of the airborne forces to respond to the strategic needs of the Nation for many years to come.

1. Should the LAV-105 be used by the airborne forces as the replacement for the M-551A1 Sheridan light tank? The Army seems more than willing to continue to take what ever is available and make due. The LAV-105 is not what the airborne division needs, but may ultimately be acquired only because it is cheap and available. What other light tanks (as is, or modified) are available worldwide, that could replace the M-551A1 Sheridan? Could a true airborne tank be developed if given sufficient funding in the next few years? If an airborne infantry fighting vehicle were developed with a tank killing capability, would an airborne light tank even be needed?

2. Is it time to do away with the airborne, light infantry and air assault divisions and task organize a contingency division? Why do we still have pure airborne, light and air assault divisions while all our other forces are task organized, combined arms teams? For example, an armored division has not only tanks, but also mechanized infantry, and attack helicopter forces? Why not develop contingency divisions with light mechanized airborne forces, light infantry forces and air assault forces - essentially a contingency force task organization? By reorganizing the seven light, airborne, air assault, or motorized

divisions into two contingency corps of two contingency divisions each, the force projection capability of the Army could be increased. While the size of the total force would be decreased, the result may be a smaller, more deployable, versatile and lethal Army.

3. When will we give the light divisions the forced entry, tactical mobility and firepower they will need to deal with the same future Third World threats as the airborne forces face? Dozens of studies have been already been done on this subject and the same shortcomings identified with the current airborne forces, exist with the light forces. By modernizing the light divisions along with the airborne, air assault and motorized forces, as a package, the greater the quantities of equipment required and the lower the overall costs for the development and acquisition of this light and strategically deployable equipment.

4. Are tracked or wheeled vehicles better for the armored tactical vehicles of the future airborne forces? If a requirement is established for three of these future vehicles (rigged for airdrop) to fit on a C-141 aircraft, then these vehicles will weigh less than 12 tons. A 1985 TRADOC study concluded that, "tracked vehicles are more compact and offer a superior gun platform while wheeled vehicles are quieter, have lower fuel consumption, are self-deployable within a theater, and have superior reliability and maintainability." It goes on to say, "Because of the reduced off-road mobility, reduced maneuverability, reduced weight growth potential, inferior large caliber gun platform and larger overall size, we do not see the 10 to 20 ton wheeled armored vehicle as a viable combat platform."<sup>12</sup> Perhaps, this is the reason why the 14 ton, wheeled LAV-105 is having problems.

## CONCLUSION

In closing, it seems clear that until the Army identifies and accepts the nature of future wars, the airborne forces will be forced to make due. As fewer U.S. troops are forward deployed, the importance of strategic force projection increases. Yet, the forces and equipment expected to accomplish this mission are designed and equipped to deal with a 1970s Third World threat. The education of our leadership would be an important step in preparing our forces for these future requirements. In 1990, however, the Army's formal training programs have not been responsive to the impending changes. In the 622 hour Command and General Staff College curriculum, for example, not one hour is spent on airborne operations and not one, of the well over 100 electives available, addresses the force projection requirements that are sure to be a part of the Army's future. The other Army schools appear to be no more responsive. However, the Army may be finally realizing the need for the airborne forces. The 1989 Department of the Army Long-Range Planning Guidance states:

The trend suggests. . .there will be a premium placed on U.S. reaction and reinforcing capabilities. The growing potential for U.S. involvement in settling regional instability and conflict, and peacekeeping assignments places renewed emphasis on capable modernized forces that will deter adventurous potential adversaries.<sup>13</sup>

Assuming the Army embraces the need for a significant modernization effort immediately, there is still the extremely slow research, development and acquisition system that must be dealt with. The Army began accepting offers from U.S. industrial firms for the development of the infantry fighting vehicle in 1964 - the M-2 Bradley was fielded 18 years later.<sup>14</sup> The strategic needs of the Nation and the future Third World threats will not give the Army that much time for the modernization of the airborne. The challenge is clear, "to develop and

field forces capable of deterring or fighting wars in regions in which the local protagonists themselves possess the means for escalation well beyond the low-intensity level."<sup>15</sup> We must modernize the airborne forces before it is too late!

*Where is the prince who can afford so to cover his country with troops for its defense, as that ten thousand men descending from the clouds, might not, in many places, do an infinite deal of mischief before a force could be brought to repel them?*

Benjamin Franklin, 1784

## CHAPTER SIX ENDNOTES

<sup>1</sup> Headquarters, TRADOC, Memo from General John W. Foss to Commanders TRADOC, Subject: AirLand Battle-Future: An Evolving Concept, dated, 1 March 1990, p. 10.

<sup>2</sup> "Bigger Cuts in Defense Budget Reportedly are in the Works," The Kansas City Star, 18 March 1990, p. A-12.

<sup>3</sup> Congressman Richard B. Cheney and MAJ Thomas N. Harvey, "Strategic Underpinnings of a Future Force," Military Review, Oct. 1986, p. 9. Also, Carl E. Vuono, The U.S. Army: A Strategic Force for the 1990's and Beyond (Washington, D.C.: U.S. Army White Paper, Jan. 1990), pp. 10 and 13.

<sup>4</sup> Paul D. Wolfowitz, "Strategic Thinking in Today's Dynamic Times," Defense, Jan./Feb. 1990, p. 11.

<sup>5</sup> Cheney and Harvey, pp. 10-11.

<sup>6</sup> James F. Dunnigan and Austin Bay, A Quick and Dirty Guide to War (New York: William Morrow and Company Inc., 1985), p. 392.

<sup>7</sup> Charles Crenshaw, Volume of Fire as an Effective Measurement of Infantry Performance in Battle (Fort Leavenworth, KS: SAMS Monograph, Jan. 1986).

<sup>8</sup> Field Manual 100-15, Corps Operations (Approved Final Draft), (Washington D.C.: Government Printing Office, Nov. 1988), p. 6/37.

<sup>9</sup> Robert McQuie, "Battle Outcomes: Casualty Rates as a Measure of Defeat," Army, Nov. 1987, pp. 32 and 34. The numbers used were based on a total of 80 battles examined, 72 of the battles were lost as a result of either maneuver (60) or firepower (12). The remaining 18 battles were decided for other reasons, such as, one side ordered to withdraw.

<sup>10</sup> MG Christoph-Adolf Fuerus, The Paratrooper Force in Transition (JPRS-WER-88-023), translated from Bonn WEHRTECHNIK, in German, March 1988, p. 15.

<sup>11</sup> Rupert Pengelley, "Main Armament Systems for Wheeled Gun-Vehicles," International Defense Review, Oct. 1989, pp. 1361-1362.

<sup>12</sup> Kenneth L. Boyd, Wheeled Versus Tracked Vehicle Study (DTIC # AD-A166390, March 1985), pp. 1/78, 1/95-96.

<sup>13</sup> United States Army, Army Long-Range Planning Guidance (Draft), (Washington D.C.: HQDA, ODCSOPS (DAMO-SSP), June 1989), p. 9.

<sup>14</sup> Steven J. Zaloga, The M-2 Bradley Infantry Fighting Vehicle (London: Osprey Publishing Ltd., 1986), pp. 5 and 18.

<sup>15</sup> Robert L. Pfaltzgraff Jr., "The Army as a Strategic Force in the 90s and Beyond," Army, Feb. 1990, p. 25.

## **APPENDIX A**



## APPENDIX A

### SOVIET AND U.S. AIRBORNE ORGANIZATIONS AND EQUIPMENT

Soviet Airborne Squad and Company <sup>1</sup> . . . . .	page A-2
Soviet Airborne Regiment <sup>2</sup> . . . . .	pages A-3 & A-4
Soviet Airborne Division . . . . .	pages A-5 & A-6
U.S. Airborne Company <sup>3</sup> . . . . .	page A-7
U.S. Airborne Battalion. . . . .	page A-8
U.S. Airborne Brigade. . . . .	page A-9
U.S. Division Ready Brigade (Medium) Equipment Listings by Unit <sup>4</sup> . . . . .	pages A-10 / A-12

Notes: 1. The Soviet information is from FM 100-2-3, The Soviet Army Troops Organization and Equipment, July 1984, pp. 4-133 to 4-140. The numbers in this appendix may vary slightly from those used in the analysis in chapter four because the analysis uses the information found in FM 100-2-3, November 1988 which is still in draft form. The only significant difference is that the antiaircraft and weapons squads in the companies have been moved up into the battalion. There is very little change in the airborne regiments overall from 1984 to 1988.

2. A complete listing of the trucks in the Soviet airborne regiment and division is not included but can be found in FM 100-2-3.

3. The U.S. information is from The 82d Airborne Division Capabilities Book 1988, pp. 5-3 to 5-11.

4. The Division Ready Brigade (DRB) information is from an unclassified 1988 Memorandum Subject: 82d Airborne Division Generic Force Packages. The DRB package used is not designed to represent a "go to war" configuration but is intended to serve as a point of departure for rapidly tailoring forces for specific contingencies. It is used in this thesis only as a possible brigade task force configuration.

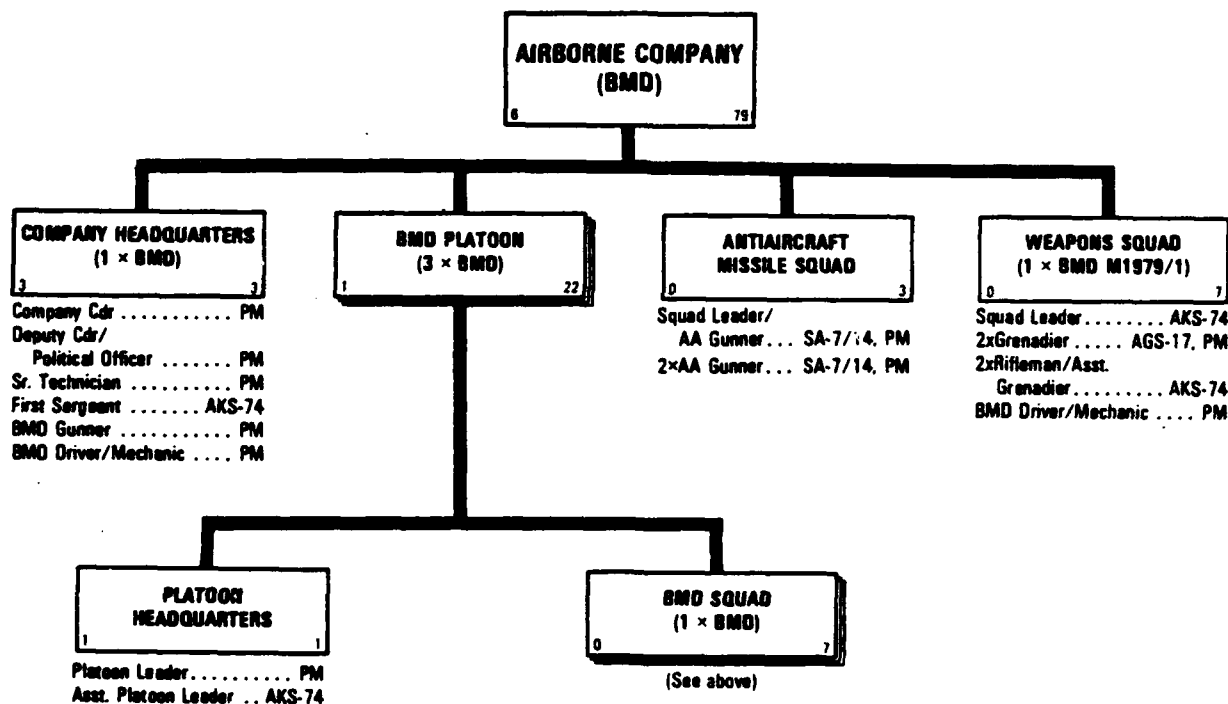
## AIRBORNE REGIMENT STRUCTURE (BMD)

### BMD Squad



Personnel	Equipment
Squad Leader/BMD Commander .....	AKS-74
BMD Driver/Mechanic .....	PM
BMD Gunner .....	PM
Machine Gunner .....	RPKS-74
Grenadier .....	RPG-16D, PM
Asst. Squad Leader/Senior Rifleman .....	AKS-74
Rifleman/Asst. Grenadier .....	AKS-74

### Airborne Company, Airborne Battalion, Airborne Regiment, Airborne Division



### PRINCIPAL ITEMS OF EQUIPMENT

Equipment	Total	Equipment	Total
9-mm Pistol, PM .....	41	AAICV, BMD .....	10
5.45-mm Assault Rifle, AKS-74 .....	35	AAICV, BMD M1979/1 .....	1
5.45-mm Light Machine Gun, RPKS-74 .....	9	Radios:	
30-mm Automatic Grenade Launcher, AGS-17 .....	2	VHF, Portable, Very-Low-Power, R-126 .....	4
Antitank Grenade Launcher, RPG-16D .....	9	VHF, Manpack, Low-Power, R-107 .....	1
SAM, SA-7/GRAIL or SA-14 Gripstock .....	3	VHF, Vehicle Mount, Medium-Power, R-123 .....	11

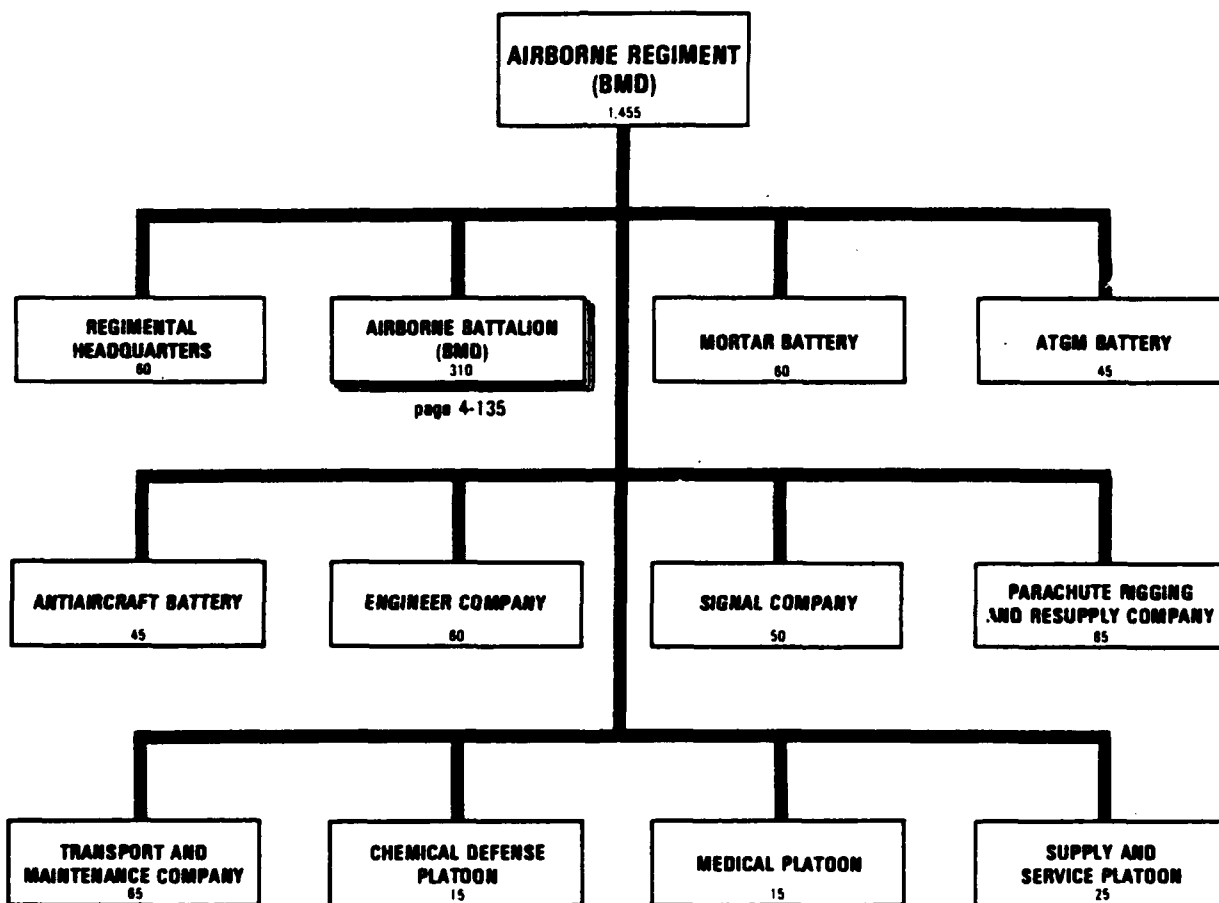
NOTE: The company commander's RTO is detailed from the battalion communications platoon and is not included in the BMD company personnel total.

## Airborne Regiment (BMD)

The airborne regiment is structured around a nucleus of three airborne battalions and three fire support subunits: one mortar battery, one ATGM battery, and one antiaircraft battery. There are also other elements that support the combat elements.

Each regiment is now fully equipped with approximately 100 BMDs in 4 different configurations. The basic BMD is the standard squad vehicle, the BMD M1979/1 is used by weapons squads within companies, and the BMD M1979/3

is used as a command vehicle at battalion and regimental headquarters. A fourth variant, the BMD M1981/1, has been identified, although its role and deployment pattern have not yet been determined. By adding the BMD to such an extent, the Soviets have upgraded troop protection, mobility, and firepower while retaining air-droppability. Only a few items within airborne regiments (several trucks) cannot be air-dropped.



NOTE: Approximately 150 personnel are officers.

# **AIRBORNE REGIMENT (BMD), AIRBORNE DIVISION**

	REGIMENTAL HEADQUARTERS 3 x AIRBORNE BATTALION (BMD) MORTAR BATTERY ATGM BATTERY ANTI-AIRCRAFT BATTERY ENGINEER COMPANY SIGNAL COMPANY PARACHUTE RIGGING & RE-SUPPLY COMPANY TRANSPORT AND MAINTENANCE COMPANY CHEMICAL DEFENSE PLATOON MEDICAL PLATOON SUPPLY AND SERVICE PLATOON TOTAL													
PERSONNEL	60	930	60	45	45	60	50	85	85	15	15	25	1,465	
WEAPONS														
120-mm Mortar, M1943 or New			6										6	
SAM, SA-7/GRAIL or SA-14 Gripstock	3	27		3	3								36	
23-mm AA Gun, ZU-23					6								6	
ATGM Launcher Vehicle (BRDM-2), AT-3/5				9									9	
ATGL, RPG-160	2	90	6	9					4				111	
30-mm Auto Grenade Launcher, AGS-17		18											18	
5.45-mm LMG, RPKs-74	2	81											83	
AAICV/ACV														
ACV, BMD M1979/3	4	6											10	
AAICV, BMD M1979/1 (Weapons Platoons)		9											9	
AAICV, BMD		90											90	
ASC, BRDM-2				4									4	
GENERAL PURPOSE TRUCKS														
Truck, UAZ-69/489	4	3	1		1	1	8		1				19	
Truck, GAZ-66 A/B		30	6		6	4		30			2	8	96	
Truck, ZIL-130/131				3				25	36				64	
Truck, Ural-375D									2				2	
Truck, KrAZ-255B								6					6	
Truck, Ambulance, UAZ-450A/452		3									2		5	
VAN TRUCKS														
Truck, Van, ZIL (AT-3/5 Simulator)				1									1	
Truck, Van, GAZ (Signal)							3						3	
Truck, Van, ZIL (Maintenance)		3							9				12	

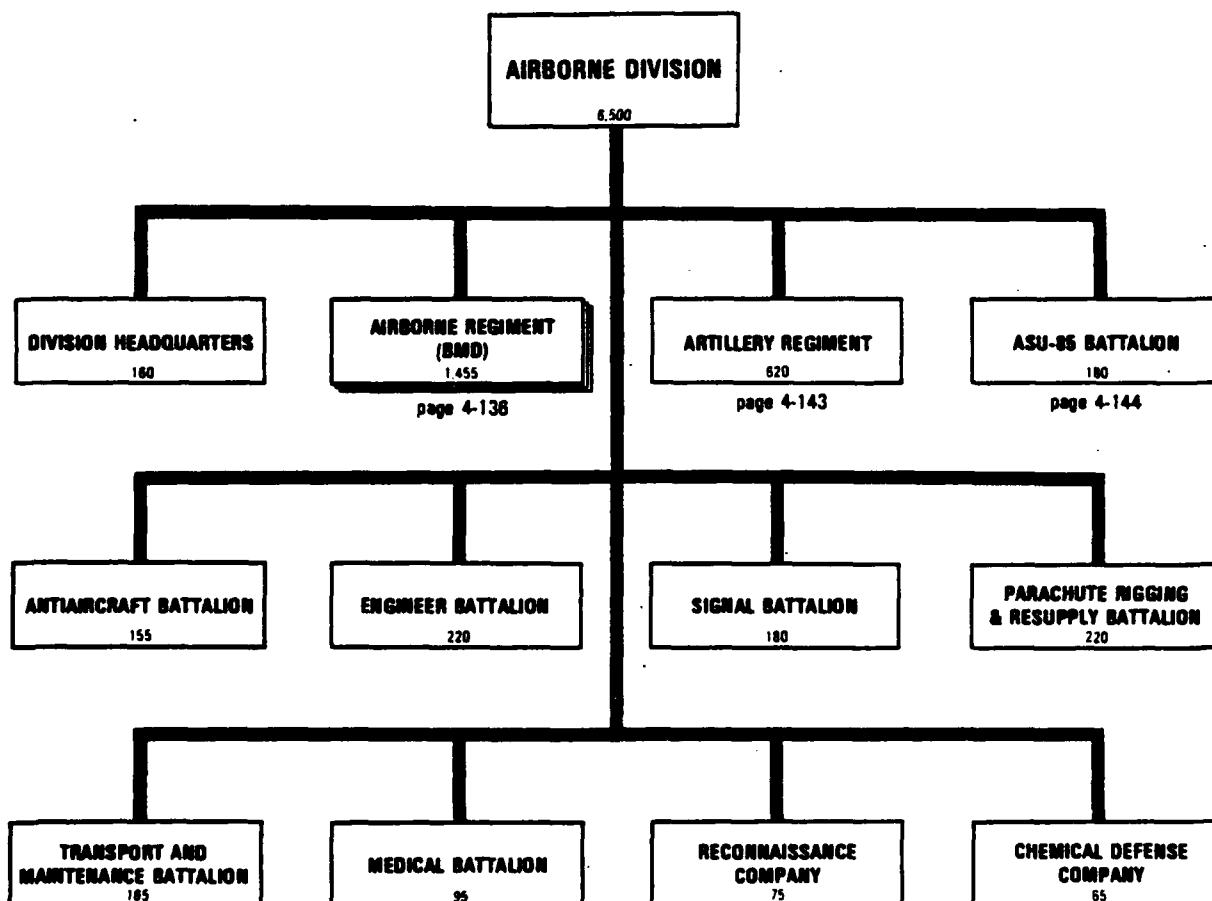
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## AIRBORNE DIVISION

### Airborne Division

The Soviet airborne division now is almost fully equipped with motorized equipment. This significantly increases its combat power and mobility, while retaining an airdrop capability for most of its equipment. Under the reorganization, the airborne division now is assessed to have the BMD amphibious airborne infantry combat vehicle (AAICV) in all

three of its airborne (infantry) regiments. Essential combat support is provided by an artillery regiment, an assault gun (ASU-85) battalion, and an antiaircraft battalion. Also, the airborne division has other combat support and combat service support units that provide limited backup for combat operations.

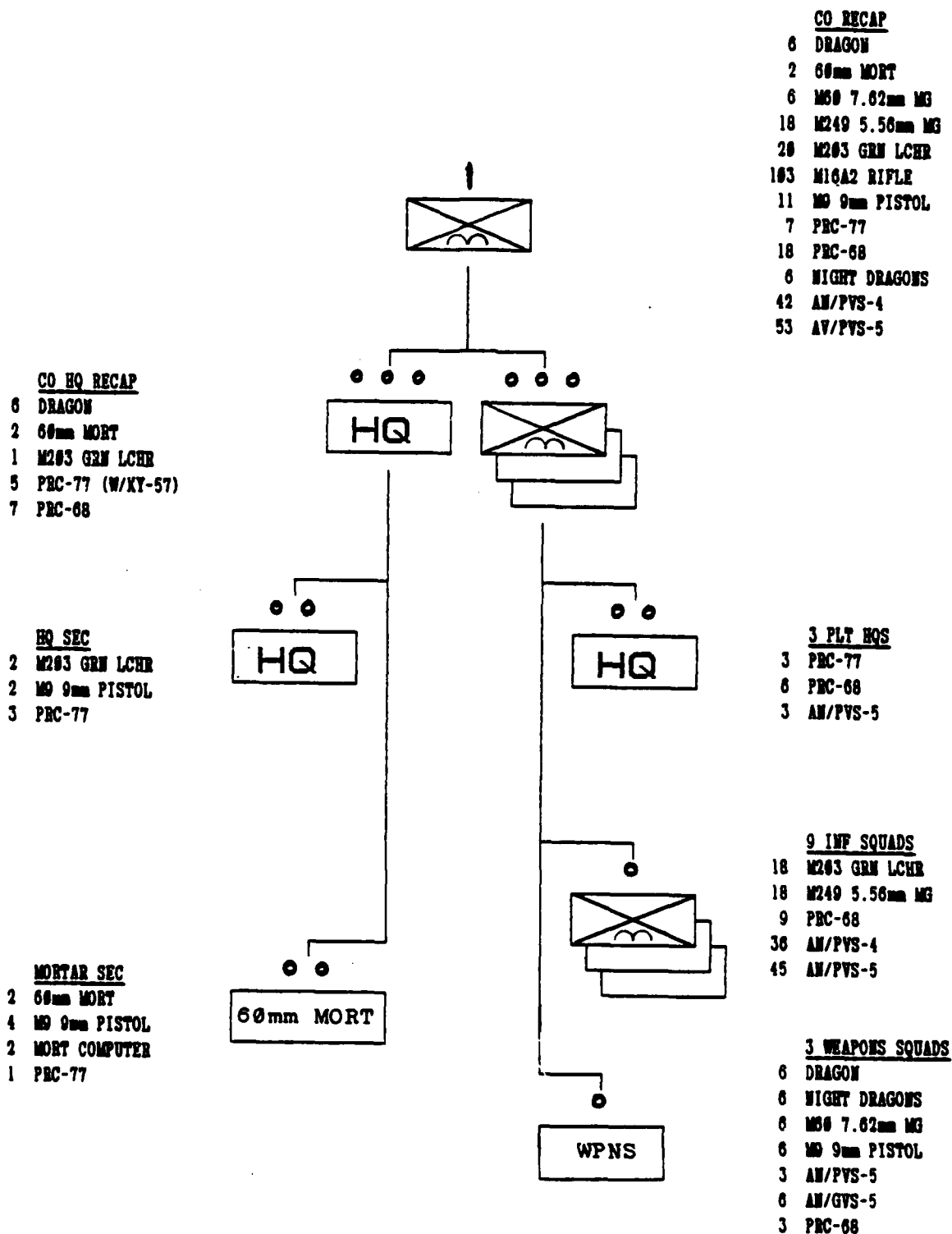


# AIRBORNE DIVISION

	DIVISION HEADQUARTERS AND HEADQUARTERS COMPANY													
	3 - AIRBORNE BATTALION (BMD)													
	ARTILLERY REGIMENT													
	ASU-85 BATTALION													
	ANTIAIRCRAFT BATTALION													
	ENGINEER BATTALION													
	SIGNAL BATTALION													
	PARACHUTE RIGGING & RE-SUPPLY BATTALION													
	TRANSPORT AND MAINTENANCE BATTALION													
	MEDICAL BATTALION													
	RECONNAISSANCE COMPANY													
	CHEMICAL DEFENSE COMPANY													
	TOTAL													
PERSONNEL	160	4,365	620	180	155	220	180	220	185	95	75	65	6,500	
WEAPONS														
122-mm Howitzer, D-30			30										30	
122-mm Rocket Launcher, M1975			6										6	
120-mm Mortar, M1943 or New		18											18	
85-mm SP Assault Gun, ASU-85				31									31	
SAM, SA-7/GRAB, or SA-14 Gripstock	6	108	21	12	12	6	6	6			6		183	
23-mm AA Gun, ZU-23		18			18								36	
ATGM Launcher Vehicle (BROM-2), AT-3/5		27											27	
ATGL RPG-160	6	333	40	2		12	11		8		9		421	
30-mm Auto Grenade Launcher, AGS-17		54											54	
5.45-mm LMG, RPK-74	4	249	36				4				8		301	
AAICV/ACV/ASC														
ACV, BMD M1979/3	3	30											33	
AAICV, BMD M1979/1		27											27	
AAICV, BMD		270											270	
ACV, BROM/BROM-2	2	12									1		15	
ASC, BROM/BROM-2											8		8	
GENERAL PURPOSE TRUCKS														
Truck, UAZ-69/469	16	57	30	2	1	10	7	10	6	4		6	149	
Truck, GAZ-66 A/B	6	288	75		25	20	2	60				15	481	
Truck, ZIL-130/131		192		6			3	50	50				301	
Truck, Ural-3750		6							6				12	
Truck, KrAZ-255B		18						12					30	
Truck, Ambulance, UAZ-450A/452	1	15	3	1						10			30	

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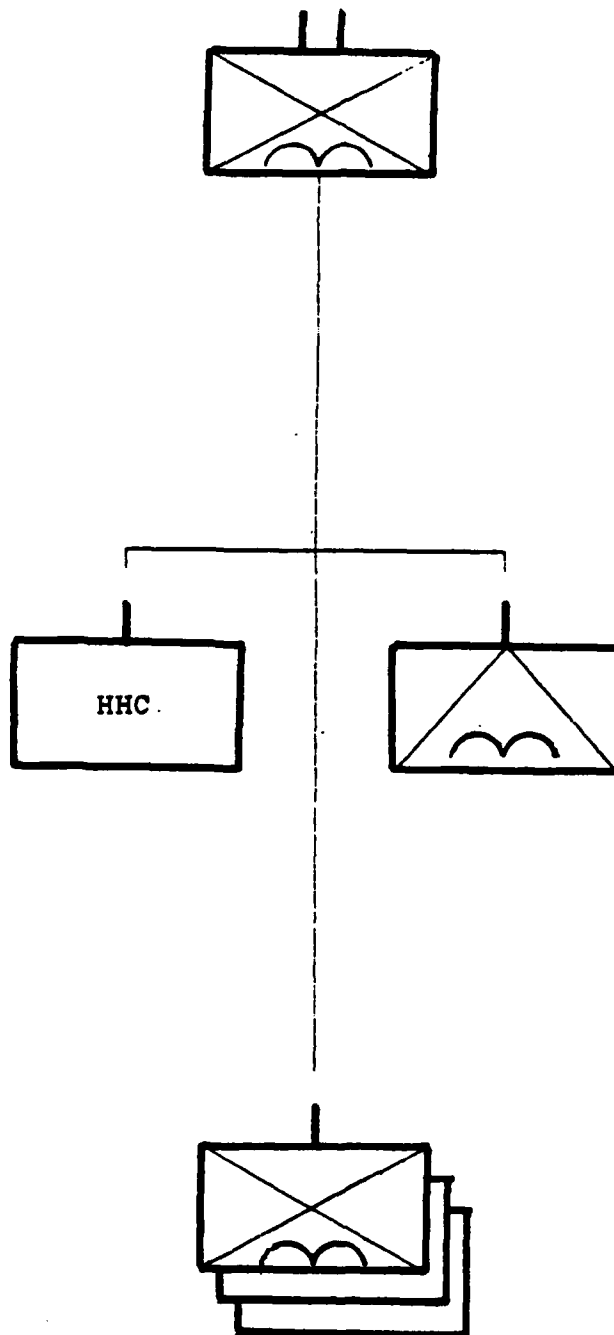
# AIRBORNE RIFLE COMPANY



# AIRBORNE INFANTRY BATTALION

## BN HHC RECAP

9 M-202  
 4 81mm MORT  
 5 M2 .50 cal MG  
 11 M203 GRN LCHR  
 100 M16A2 RIFLE  
 31 M9 9mm PISTOL  
 10 2 1/2 T TRUCK  
 28 HMMV  
 15 MOTORCYCLES  
 3 400gl WTR TRLR  
 4 1-1/2T TRLR  
 2 3/4T TRLR  
 7 VBC-46  
 8 VBC-47  
 1 VBC-49  
 10 GRC-160  
 23 PRC-77  
 1 GRC-213  
 5 PRC-68  
 61 PVS-5  
 7 PVS-4  
 1 GVS-5  
 10 PEWS  
 17 BINO



## ANTIARMOR CO RECAP

20 TOW  
 32 M203 GRN LCHR  
 67 M16A2 RIFLE  
 41 M9 9mm PISTOL  
 32 HMMV  
 314 VBC-46  
 30 GRC-160  
 20 PRC-77  
 20 TAS-6  
 64 PVS-5  
 16 GVS-5  
 32 BINO

## INF CO RECAP

6 DRAGON  
 2 60mm MORT  
 6 M203 7.62mm MG  
 18 M249 5.56mm MG  
 20 M203 GRN LCHR  
 103 M16A2 RIFLE  
 11 M9 9mm PISTOL  
 7 PRC-77  
 18 PRC-68  
 53 PVS-5  
 42 PVS-4  
 10 BINO



# AIRBORNE INFANTRY BRIGADE

## BDE RECAP

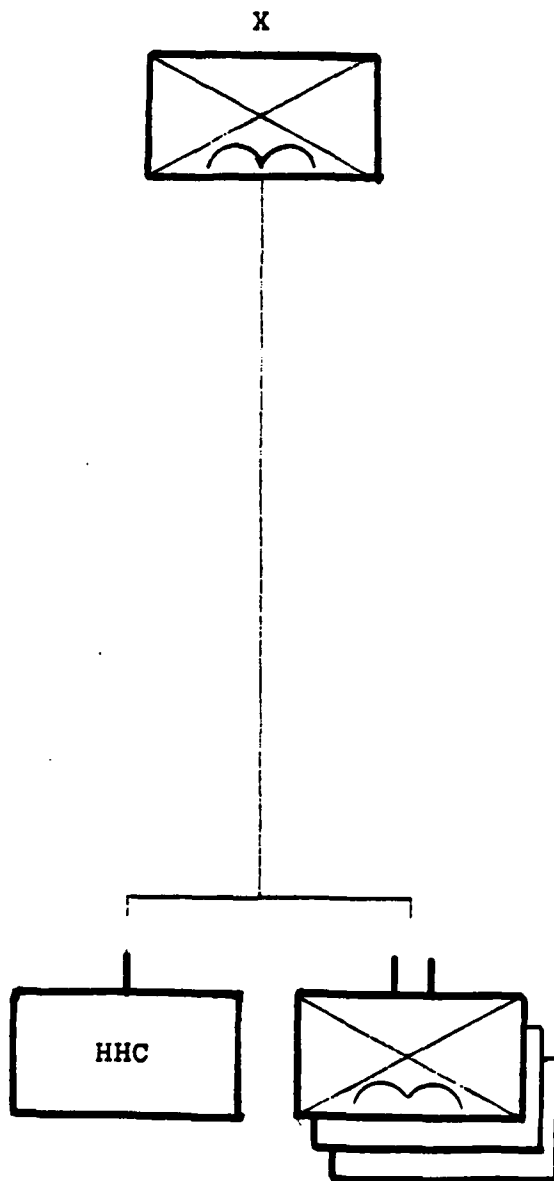
68 TOW  
54 DRAGON  
27 M-202  
12 81mm MORT  
18 60mm MORT  
18 M2 .50 cal MG  
54 M60 7.62 mm MG  
162 M249 5.56mm MG  
313 M203 GRN LCHR  
1682 M16A2 RIFLE  
327 M9 9mm PISTOL  
197 HMMWV  
45 MOTORCYCLES

## BDE HHC RECAP

3 M2 .50 cal MG  
4 M203 GRN LCHR  
74 M16A2 RIFLE  
12 M9 9mm PISTOL  
3 2 1/2 T TRUCK  
17 HMMWV  
1 400gl WTR TRLR  
1 1-1/2T TRLR  
4 3/4T TRLR  
17 VRC-46  
1 VRC-47  
1 VRC-49  
1 GRC-166  
9 PRC-77  
24 PVS-5  
2 BINO

## BN RECAP

28 TOW  
18 DRAGON  
9 M-202  
4 81mm MORT  
6 60mm MORT  
5 M2 .50 cal MG  
18 M60 7.62mm MG  
54 M249 5.56mm MG  
103 M203 GRN LCHR  
536 M16A2 RIFLE  
105 M9 9mm PISTOL  
10 2 1/2 T TRUCK  
60 HMMWV  
15 MOTORCYCLES  
3 400gl WTR TRL  
4 1-1/2T TRLR  
2 3/4T TRLR



# DIVISION READY BRIGADE (MEDIUM)

<u>UNIT</u>	<u>PERSONNEL</u> <u>DROP</u>	<u>A/L</u>	<u>NUMBER</u> <u>UNITS</u>	<u>A-ECHELON</u> <u>(HVV DROP)</u>	<u>B-ECHELON</u> <u>(AIRLAND)</u>
<u>Div Asslt CP</u>	25	0	1	3 - M998	
<u>Aviation Brigade</u>					
Command & Control	0	12	1		2 - M998 1 - CUCV w/trl 1 - M35 w/trl 2 - Pallets
Division Cavalry Squadron (-):					
Air Cav Trp (-)	0	73	1		3 - OH-58 3 - AH1S 2 - UH-60 1 - M998 17 - Pallets
Grnd Cav Plt	0	22	1		2 - M966 (TOW) 3 - M998 (Recon) 1 - M998 (C&C) 2 - M998
LRSD	15	5	1		
Asslt Helo Bn (-)	0	42	1		6 - UH-60 1 - OH-58 1 - M923 (5-ton) 1 - M998 2 - CUCV w/trl 2 - Pallets 1 - A90 Shop Set
Class III/V Plt (-)	0	22	1		1 - 10,000 lb fklft 1 - CUCV 1 - M923TPU w/trl 3 - Pallets
<u>Division Ready Brigade</u>					
Brigade HQ's	22	5	1	3 - M998	3 - M998 1 - M998 (ADA)
USAF LNO	2	0	1	1 - M998	
USAF TACP	2	0	1	1 - M998	
Bde FSO Tm	4	0	1	1 - M998	
<u>Infantry Battalions:</u>					
Bn HQ's	28	2	3	1 - M998	1 - M998
Medical Plt	18	2	3	2 - M996	2 - M996
Commo Plt	8	2	3		1 - M998
Support Plt	8	2	3		1 - M35 w/wtr trl
Scout Plt	18	0	3	5 - Mtrcycle	
81-mm Mort Plt	16	4	3	2 - M998	1 - M998
Bn FSO Tm	4	0	3	1 - M998	

UNIT	PERSONNEL DROP	A/L	NUMBER UNITS	A-ECHELON (HVV DROP)	B-ECHELON (AIRLAND)
<u>Infantry Companies:</u>					
Company	132	0	9		
Mort Sec (60mm)			9		
<u>Antiarmor Companies:</u>					
Company HQ's	5	3	3	1 - M1038	
Antiarmor Plt	16	0	3	4 - M966 (TOW)	
<u>Field Artillery:</u>					
FA Bn HQ's	30	15	1	2 - M998	2 - M998
Mov Tgt Loc Radar			1		1 - M998 w/trl
					1 - M35 w/trl
FA Btry	65	10	3	4 - 105mm	2 - 105mm
				4 - M1038	2 - M1038
				2 - M998	6 - Pallets
				18 - CDS	
<u>Armor</u>					
Company (-)	20	5	1	4 - M551	1-M35 w/trl
				4 - Platforms	
<u>Air Defense Artillery</u>					
Stinger Plt	50	0	1	5 - M998	
Vulcan	0	17	1		3 - M998
					3 - M167
					2 - M998
<u>Engineer</u>					
Company (-)	97	4	1	1 - M998	1 - 5T Dump Trk
				1 - Dozer	1 - 15T Tilt Trl
Airfield Repair			1	1 - Loader	1 - 2 1/2 Dump Trk
				1 - Grader	1 - Air compressor
				1 - 13 Wh Roller	
<u>Signal</u>					
FASC PLT	15	10	1		1 - M998 (FM)
					2 - M998 (RATT)
					1 - M998 (Wire)
<u>CEWI</u>					
Cnd & Control	2	1	1		1 - M998
C&J	3	5	1		1 - M998
CI	4	0	1		
GSR	0	4	1		
IPW	3	1	1		1 - M998

UNIT	PERSONNEL DROP	A/L	NUMBER UNITS	A-ECHELON (HVY DROP)	B-ECHELON (AIRLAND)
<u>Military Police</u>					
MP Plt	21	5	1	2 - M998	3 - M998
<u>Forward Area Support Team</u>					
FAST HQ's	3	2	1	1 - M998	1 - M998
A/DACG Pkg	9	9	2		
<u>Forward Support, Medical Company:</u>					
Company HQ's	5	11	1		1 - M998
Amb Plt	8	8	1		6 - M996
Treatment Plt	22	16	1	2 - M998	7 - M998 (3 w/trl)
				1 - 12' MOD	1 - M35 w/trl
Surgeon	8	0	1	2 - M998	
<u>Forward Support, Supply and Services Detachment:</u>					
Det HQ's	2	7	1		1 - M998
Cl II, IV, VII	2	10	1		1 - M998
Water Pkg	1	7	1		2 - M923 w/t (ROWPU)
GRREG Sect	3	3	1		1 - M998
Class III Sec	10	6	1	1 - M35 w/trl	1 - M35 w/trl
				2 - Platforms	
Class V Sec	4	8	1		1 - M998
Trans Sec	0	6	1		3 - M35 w/trl
Forklift Sect	1	5	1		1 - 6K lbs RT Fklft
					1 - 10K lbs RT Fklft
<u>Forward Support, Maintenance Company:</u>					
Company HQ's	3	6	1		1 - M998
					1 - M151
Mech Maint Sec	7	20	1		1 - M887 w/S250 Shtr
					1 - M146 Shelter
Commo Maint Sec	2	8	1		1 - M998
					1 - M146 Shelter
Arm Maint Sec	3	2	1		1 - M998
					1 - M146 Shelter
Supply Sec	2	7	1		1 - M998
					1 - M147 Shelter
					1 - Platforms
Svc/Recov Sec	0	4	1		1 - M936 Wrecker
					1 - PU619 trl
Msl Maint Sec	2	5	1		1 - M1037 w/S250
<u>Civil Affairs</u>					
CA Sec	0	9	1		1 - M151
Linguist	0	5	1		
<u>PSYOPS</u>					
PSYOPS Tm	4	0	1		
<u>PERSONNEL TOTALS</u> 2171 + 496 = <u>2667</u>					

**APPENDIX B**

## APPENDIX B

### REQUIREMENTS FOR AIRBORNE AMPHIBIOUS INFANTRY FIGHTING VEHICLE (AAIFV)

The following list of recommended requirements for the AAIFV is provided to include as many capabilities as possible. If a serious research and development effort was undertaken the vast majority of the requirements could be met with today's technology.

1. Airdroppable fully combat loaded/topped off; No assembly after drop.
2. Low Altitude Parachute Extraction System (LAPES) capable.
3. Amphibious; Without any preparation or shrouds.
4. Large caliber gun that can accurately fire 1500 meters on the move.
5. Transport eight personnel, crew of two and six passengers.
6. Weigh less than 11.5 tons fully loaded (1/3 of C-141 peacetime load)
7. No longer than 16 ft (allows for four 16 ft platforms on C-17).
8. Antitank missile mounted so height does not exceed 8 ft tip-off req.
9. Armor protection from 7.62mm weapon, artillery fragments 360°.
10. Multi-fuel; Fuel efficient; 300 mile range; Rapid refueling capable.
11. NBC filtration system with overpressure; EMP protected.
12. Thermal sights; Laser range finder; Night sights.
13. Optics, laser protected.
14. Built-in chemical alarm accessible from interior of vehicle.
15. On-board navigation system.
16. External telephones (right and left rear).
17. Chassis allows for many configurations (Arty, Mortars, Air defense).
18. Attaching points for helicopter airlift, built-in.
19. HF and VHF (AM and FM) secure radios mounted.
20. Can tow another fully loaded AAIFV; Tow cable & tow hookup built-in.
21. Smoke generation capability.
22. Boresighting of weapon systems/sights not required after airdrop.
23. Easy maintenance design; Easy access to engine and electronics.
24. All vehicles built with mechanical breaching equipment attachments.
25. Exhaust location does not preclude personnel from following directly behind or on either side of the vehicle.

**APPENDIX C**

## APPENDIX C

### REVIEW OF LITERATURE

It is a doctrine of war not to assume the enemy will not come, but rather to rely on one's readiness to meet him; not to presume that he will not attack, but rather to make one's self invincible.

SUN TZU

### INTRODUCTION

This review of literature identifies and analyzes the material consulted in preparing this thesis. It incorporates historical and contemporary studies, articles and books, both U.S. and Soviet. Experts in U.S. Army force design, doctrine and airborne operations, as well as Soviet studies experts will be consulted. This survey of literature will be subdivided into four main areas each containing books, periodicals, government documents, student theses and other materials. These areas address: the evolution and current status of the U.S. airborne forces; the evolution and current status of the Soviet airborne forces; the future threats and force design orientation of the Army; and Army doctrinal publications used for general reference.

### U.S. AIRBORNE FORCES - EVOLUTION AND CURRENT STATUS

#### Books:

There are many books that present information on the history, development and use of the U.S.' airborne forces. Some of the books used in this thesis follow: John Weeks' Assault from the Sky; Ross S. Carter's Those Devils in Baggy Pants; Edwin P. Hoyt's Airborne; LTG



James M. Gavin's Airborne Warfare; Michael Hickey's Out of the Sky: History of Airborne Warfare; S.L.A. Marshall's Night Drop; Cornelius Ryan's A Bridge too Far; William B. Breuer's Drop Zone Sicily; James A. Huston's Out of the Blue: U.S. Army Airborne Operations in World War II; and Maurice Tugwell's Airborne to Battle.

Government Documents:

Major Joel J. Snow wrote a Master of Military Art and Science thesis titled, United States Army Airborne Forces: An Instrument of Land Power, June 1984. His thesis provides a good overview of the different roles of the airborne and concludes that if assigned the proper missions and adequately resourced, the airborne forces will continue to serve as an instrument of national security policy during the period 1990-2000. MAJ Snow focused on the historic use of airborne forces to support the bulk of his assessments. The identification and impact of the future threats was not a major objective of his thesis and as such, was not discussed in detail. He did identify the need for tactical mobility to provide the airborne forces some offensive capability.

Major Thomas G. Waller wrote a monograph for the School for Advanced Military Studies (SAMS) at Fort Leavenworth Kansas titled, Bolt from the Sky: The Operational Employment of Airborne Forces, 17 May 1986. This monograph discusses the ability of brigade-size airborne forces to have a decisive operational impact. It further emphasizes the need for airborne forces to conduct the maneuver needed in AirLand Battle doctrine.

Another SAMS monograph was written by Major John F. W. Caldwell and is titled, Forced Entry: Does the Current Airborne Division Still Retain This Capability Under the Light Infantry Tables of Organization and Equipment? The author provides an excellent analysis of the H-series table of organization and equipment (TO&E) and the newer

L-series TO&E. The reductions in the mobility, firepower, air defense and communications that occurred with the modernization of the airborne division in 1987, have rendered the division unable to conduct a forced entry mission against a well-trained enemy. His analysis clearly shows that to accomplish the missions assigned, the U.S. airborne division needs more combat power.

Periodicals:

Like the books, there are many articles that address U.S. airborne forces. A significant article was written by General Carl E. Vuono, the Army Chief of Staff, in the February 1989, Armed Forces Journal International, titled, "The United States Army is a Strategic Force." In this article, General Vuono defined the Army as a strategic force, forward deployed or rapidly deployable. He also states that the Army is the only force that can successfully terminate major conflicts. The question that might be asked is, "does the decreasing requirement for forward deployed forces mean there is a subsequent increase in the requirement for rapidly deployable forces?"

Colonel Peter J. Boylan wrote an article for the Military Review in May 1982 titled, "Power Projection, Risk and the Light Force." Colonel Boylan believes that the application of military force at the very onset of a situation may involve the least risk to the U.S., as it minimizes the amount of time a potential adversary has to develop his options. Colonel Boylan's conclusion is, to react quickly the U.S. must have a flexible and rapidly deployable airborne force.

LTG James F. Hollingsworth wrote an excellent article for the Armed Forces Journal titled, "The Light Armored Corps: A Strategic Necessity." Although ten years old, this article provides a perspective that can still be used today. LTG Hollingsworth strongly believes that a deployable light tank is essential to the the strategic force

projection capability of the Nation. His conclusion is that the U.S. needs a light armored corps that is equipped with a family of combat vehicles which includes infantry fighting vehicles and self-propelled artillery.

#### SOVIET AIRBORNE (DESANT) FORCES - EVOLUTION AND CURRENT STATUS

##### Government Documents:

The Soviet Airborne Experience is an excellent study of the Soviet airborne forces from their inception in the 1930s to the 1970s. Authored by Lieutenant Colonel David M. Glantz and prepared for the Combat Studies Institute of the U.S. Army Command and General Staff College, this document examines the Soviet airborne evolution and provides essential historical information for this thesis.

Another government document that contains a great deal of historical information on the Soviet airborne forces is Dr. Edward N. Luttwak's Historical Analysis and Projections for Army 2000: A Study of the Soviet Airborne Forces 1930-1983. This document provides an excellent review of the Soviets' airborne forces evolution. Dr. Luttwak discussed the transition from the light infantry of World War II to the light mechanized force of today in some detail. Dr. Luttwak says, "the airborne desants (forces) have become more determined, dynamic, mobile and rapid."<sup>1</sup> There is also a very good discussion of the 1970 Dvina exercise in which the Soviets airdropped an entire division, with vehicles, on three closely placed drop zones within 22 minutes.<sup>2</sup>

Austrian Army Colonel Peter Kolečko has written two articles, both titled "Soviet Airborne Forces," that have been translated and published by the U.S. Army Intelligence Agency. These articles, dated 1986 and 1988, provide an excellent source of information on the current capabilities of the Soviet airborne forces. Some of the specific

information presented includes: the tactics and techniques used by the Soviets on airborne operations; and a review of the Soviets' modernization of their airborne forces.

Periodicals:

There are dozens of articles available that address the Soviets' airborne forces. Dr. Graham Turbiville, Jr., from the Soviet Army Studies Office at Fort Leavenworth, has authored several of these articles for a variety of publications. Some of the most current unclassified information available on the Soviet Army and the development of its airborne forces can be found in these articles. A few of Dr. Turbiville's articles used in this thesis are: "Soviet Airborne Troops" (1987), "Soviet Desant Forces" (Oct. 88), "Soviet Airborne Assault" (Oct 87), and "Soviet Airborne Operations in Theater War" (1986).

MAJ Richard N. Armstrong provides some good insights into the Soviets' airborne forces modernization in his Infantry Magazine article titled, "Soviet Mechanized Airborne Forces," May-June 1985. In the article Armstrong discusses the Soviets' realization that World War II experiences identified some major weaknesses with their airborne forces. As Colonel General D. Sukhorukov, Commander-in-Chief of Airborne Forces put it:

Although these airborne forces had great strategic mobility, once on the ground they had the tactical mobility of regular infantry - two or three miles per hour on foot. Consequently, to avoid wasting the swiftness of the strategic deployment itself, and to achieve tactical surprise, airborne forces had to be dropped on or very near their objectives. As a result, the landing party's engagements usually began under conditions in which the enemy had both fire superiority and greater mobility.<sup>3</sup>

Unfortunately for the U.S.' airborne forces, this lack of secondary or tactical mobility still exists, almost 20 years after the Soviets corrected the deficiency by developing and fielding a light mechanized vehicle for their airborne forces.

C. N. Donnelly provides a good discussion of the Soviets' investments in the military application of technology in his article for the International Defense Review, titled, "The Development of Soviet Military Doctrine." Donnelly says that many Western Armies design their equipment based on peacetime requirements. He goes on to say that in the Soviet Union, the principles of war are taught, not only to the soldiers, but also to the weapons designers and the research staffs.

#### FUTURE THREATS AND FORCE DESIGN

##### AirLand Battle Future Forces Briefings:

The Combined Arms Center at Fort Leavenworth, Kansas has proponency for the force design of the Army of the future. The AirLand Battle Future Forces Division (ALBF-F) office is the agency within the Current Forces Directorate of the Combined Arms Center that is working to redesign the Army to be able to fight 15 years from now. The ALBF-F office has been given guidance to relook the current design focus from Heavy-Light to a Heavy-Medium-Light Army. One of the objectives they received in their guidance is, "To ensure that our combat forces are strategically deployable, operationally flexible, maneuver-oriented firepower-intensive, highly mobile and tactically effective."<sup>4</sup> Additional guidance includes increasing the strategic deployability of Army units through improvements in force design. The information from the ALBF-F office was used in this thesis to ensure that the recommendations developed offer viable solutions to the modernization of the U.S.' airborne forces.

### Future Threat Projections:

The Current Forces Directorate of the Combined Arms Center has developed projections of the threat forces in the year 2004. Rather than developing recommendations to modernize our airborne forces which are based on historic or even current threats, this thesis will orient on the future threats to the use of airborne forces.

### Periodicals:

An excellent article discussing the future national military strategy and the military role in determining that strategy was written by Secretary of Defense Richard B. Cheney, as a Congressman in 1981. The article, titled "Strategic Underpinnings of a Future Force" and written for the Military Review, states that the "logistically heavy, European-oriented, modernized Army force is unsuitable for the flexibility demands of the 21st-century missions."<sup>5</sup> The article goes on to say that the Army must be able to generate dominating force in remote regions faster than their adversary. And given the remote inland location of many of these areas of vital interest, the requirement for speedy strategic deployability can only be accomplished by aerial delivery. This article will be used to support the argument that a modernization of the U.S. airborne forces is necessary.

Another good article written by William S. Lind and Colonel Keith M. Nightengale et al, is titled, "The Changing Face of War: Into the Fourth Generation," October 1989, Military Review. This article takes a look at the makeup of war in recent generations and predicts the look of war in the next generation. The authors believe that maneuver will be a key element in the next generation of war and that small, highly maneuverable, agile forces will tend to dominate. Massed forces will be easily targeted. They warn that the military and the Nation must adapt to the changing face of war.

## U.S. DOCTRINAL PUBLICATIONS

FM 100-5, Operations is the U.S. Army's doctrinal manual on warfighting. In 1982, this manual introduced to the Army the AirLand Battle doctrine. The maneuver style of AirLand Battle puts a premium on combined arms forces that can be concentrated rapidly. This doctrine emphasizes the non-linear battlefield and the importance of, and interdependence of, the close, deep and rear battle to success on the battlefield. In the manual one finds the definition of deep operations: ". . . activities directed against enemy forces not in contact designed to influence the conditions in which future close operations will be conducted." The manual goes on to say, "enemy capabilities . . . must be attacked decisively, with enough power to assure the desired impact." Finally, concerning the employment of contingency operations, the manual states that, "Forces in contingency operations should be more mobile than their potential enemy. To achieve superior mobility, they may need to include mechanized, armored and aviation units." This thesis will evaluate the ability of the current U.S. airborne forces to attack and be more mobile than their potential enemies.

FM 71-100, Division Operations is the Army's capstone manual for division operations. It sets forth doctrinal principles which guide the conduct of division operations. Like many Army doctrinal manuals, it states "the airborne division fights like any infantry division with a combined arms capability." The manual goes on to say, "it is the only division with a rapid, strategic, combined arms, forced entry capability." As for considerations for staff planning, FM 71-100 highlights the division's need for ". . . more close air support than normally provided to infantry divisions because the division is organized only with light field artillery. The absence of medium and

heavy field artillery limits support for maneuver battalions and reduces the ability to deliver counterfire and to suppress enemy air defenses." The manual also keys on the division's "limited ground and air mobility once delivered into the objective area." Finally, the manual states, "Special staff consideration must be given to attack by enemy armored or motorized formations." The airborne division's deficiencies in mobility and firepower seem to present a dilemma as FM 100-5 (above) detailed the need for mobility and offensive capability in the contingency forces.

DA PAM 20-232, Airborne Operations A German Appraisal, was published in 1951 and provides a unique look at the Germans' use of airborne forces during World War II. This pamphlet provides an appraisal of the German successes and failures, the reasons for their abandonment of large-scale airborne operations after the Crete operation, the German experience in opposing Allied and Russian airborne forces and an appraisal of the effectiveness of these operations. The Germans, during World War II, did things that U.S. airborne forces even now would not consider doing, such as airdropping at an altitude of 330 feet with test jumps at 200 feet (the U.S. standard for airdrop altitude is 500 feet in combat); airdropping in winds of 31 knots during the operation in the Ardennes (the U.S. standard for airdrop is 13 knots); and airdropping intentionally in wooded terrain or on towns or villages (U.S. airborne operations are planned almost exclusively for clear flat drop zones or airfields). Although historical in nature, this document provides many observations and recommendations that still apply to the force design, equipment and doctrine of the airborne forces.



## CONCLUSION

The intent of this review of literature is to group the many areas of study together into like topics. There is significantly more information available, on the subject of airborne forces, than has been identified in this literature review. However, a comparative analysis of the Soviet airborne forces and the U.S. airborne forces, or a projection of future threats against current airborne forces capabilities has not been found.

## REVIEW OF LITERATURE ENDNOTES

<sup>1</sup> Edward N. Luttwak, Historical Analysis and Projection for Army 2000, Volume 1. part 17, Soviet Airborne Forces 1930-1983, (DTIC # B085085, March 1983), p. 159.

<sup>2</sup> Ibid., p. 77.

<sup>3</sup> MAJ Richard N. Armstrong, "Soviet Mechanized Airborne Forces," Infantry, May-June 1985, p. 25.

<sup>4</sup> AirLand Battle Future Forces Division of the Combined Arms Center, unpublished briefing notes, 27 Sep. 1989.

<sup>5</sup> Congressman Richard B. Cheney and Major (P) Thomas N. Harvey, "Strategic Underpinnings of a Future Force," Military Review, Oct. 86, p. 10.

## **BIBLIOGRAPHY**

## BIBLIOGRAPHY

### 1. BOOKS:

- Bacon, Eugene H. and Joseph C. Bernado. American Military Policy: Its Development Since 1775. Harrisburg, PA: Stackpole Books, 1955.
- Breuer, William B. Drop Zone Sicily. Novato CA: Presidio Press, 1983.
- Carter, Ross S. Those Devils in Baggy Pants. New York: Appleton-Centry-Crofts, 1951.
- Dunnigan, James F. and Austin Bay. A Quick and Dirty Guide to War. New York: William Morrow and Company Inc., 1985.
- Esposito, Vincent J. The West Point Atlas of American Wars. New York: Praeger Publishers, 1972.
- Gaddis, John Lewis. Strategies of Containment. New York: Oxford University Press, 1982.
- Gavin, Major General James M. Airborne Warfare. Washington: Infantry Journal Press, 1947.
- Griffith, Samuel B. Sun Tzu: The Art of War. New York: Oxford University Press, 1963.
- Hart, Liddell B. H. The Red Army. Gloucester, MA: Peter Smith, 1968.
- Hart, Liddell B. H. Strategy. New York: New American Library, Inc., 1974.
- Hickey, Michael. Out of the Sky: History of Airborne Warfare. New York: Scribner's Sons, 1979.
- Hoyt, Edwin P. Airborne. New York: Stein and Day Publishers, 1985.
- Huston, James A. Out of the Blue: U.S. Army Airborne Operations in World War II. West La Fayette, Indiana: Prudue University Press, 1972.
- Keegan, John. The Face of Battle. New York: Viking Press, 1976.
- Lee, Asher. The Soviet Air Force. New York: The John Day Co, 1962.
- Lloyd, Mark. Army. Italy: Chevprime Limited, 1988.
- Marshall, S.L.A. Night Drop. Boston, MA: Little, Brown and Co., 1962.
- Opstal, Debra van and Andrew C. Goldberg. Meeting the Mavericks: Regional Challenges for the Next President. Washington, D.C.: The Center for Strategic and International Studies, 1988.
- Record, Jeffrey. U.S. Strategy: Tailoring Means to Ends. New York: Pergamon Brassey's Publishers, 1986.

- Ryan, Cornelius. A Bridge Too Far. New York: Simon and Schuster Ltd., 1974.
- Simpkin, Richard E. Race to the Swift. New York: Brassey's Defence Publishers, 1985.
- Scott, Harriet F. and William F. The Soviet Art of War: Doctrine, Strategy and Tactics. Boulder, CO: Westview Press, 1982.
- Tugwell, Maurice. Airborne to Battle. London: William Kimber and Co., 1971.
- Varas, Augusto. Militarization and the International Arms Race in Latin America. Boulder, CO: Westview Press Inc., 1985.
- Weeks, John. Assault from the Sky. New York: G.P. Putnam's Sons, 1978.
- Zaloga, Steven J. The M-2 Bradley Infantry Fighting Vehicle. London: Osprey Publishing Ltd., 1986.

## 2. PERIODICALS AND ARTICLES:

- "A New Missile Threat." National Review, Aug. 1988, p. 15.
- Allard, Kenneth. "Soviet Airborne Forces and Preemptive Power Projection." Parameters, Vol X, No. 4, 1980, pp. 42-50.
- Armstrong, MAJ Richard N. "Soviet Mechanized Airborne Forces." Infantry, May-June 1985, pp. 22-28.
- Bakker, Guy de. "Anti-Ship Missiles: A Market Lull." International Defense Review, Feb. 1990, pp. 156-159.
- "Bigger Cuts in Defense Budget Reportedly are in the Works." The Kansas City Star, 18 March 1990, p. A-12.
- Boylan, COL Peter J. "Power Projection, Risk and the Light Force." Military Review, May 1982, pp. 62-69.
- Bulstov, COL A. F. "Combatting Airborne Assault Forces." JPRS-UMJ-88-010, translated from Moscow VOYENNO-ISTORICHESKIY ZHURNAL, in Russian No. 4 April 1988, pp. 59-65.
- Cannon, MAJ Michael. "Task Force Smith: A Study in (Un)Preparedness and (Ir)Responsibility." Military Review, Feb. 1988, pp. 63-73.
- Cecil, Gerald T. "Airborne - All the Way?" Army, Aug. 1977, pp. 14-21.
- Cheney, Congressman Richard B. and MAJ Thomas N. Harvey. "Strategic Underpinnings of a Future Force." Military Review, Oct. 1986, pp. 4-13.
- Donnelly, C. N. "The Development of Soviet Military Doctrine." International Defense Review, No. 12, 1981, pp. 1589-1596.
- Dunn, Michael. "Until the Imam Comes: Iran Exports its Revolution." Tactics and Technologies, 1987, pp. 155-160.

- 82d Airborne Division Staff. "The 82d Airborne Division." Soldiers, May 1981, pp. 15-21.
- Foss, GEN John W. "The Future of the Army." Army Times, 5 March 1990, p. 1.
- Gorden, Michael R. "Army Facing Cuts - Reported Seeking to Reshape Itself." New York Times, 12 Dec. 1989, p. 1.
- Holcomb, MAJ James F. Jr. "Soviet Airborne Forces and the Central Region: Problems and Perceptions." Military Review, Nov. 1987, pp. 36-47.
- Hollingsworth, LTG James F. and Allen T. Wood. "The Light Armored Corps: A Strategic Necessity." Armed Forces Journal International, Jan. 1980, pp. 20-24.
- Hertling, Mark P. "Narcoterrorism: The Unconventional War." Military Review, March 1990, pp. 16-28.
- "Iraqi Leader Threatens Attack With Nerve Gas." Kansas City Star, 3 April 1990, p. A-1.
- Johnston, Glenn T. "The 120mm SP Mortar/Howitzer: Its Impact on NATO Rear Area Defense." Armor Magazine, March-April 1986, pp. 20-23.
- Kolecko, COL Peter, (Austrian Army). "Soviet Airborne Forces." Translation from Truppendienst, Vol 25, No. 6, 1986, pp. 574-581.
- Kolecko, COL Peter, (Austrian Army). "Soviet Airborne Forces Part II." Translation from Truppendienst, Vol 26, No. 1, 1987, pp. 13-19.
- Lind, William, COL Kieth M. Nightengale et al. "The Changing Face of War." Military Review, Oct. 1989, pp. 2-11.
- Margelov, V.F. "Development of the Theory of Employment of Airborne Troops in the Postwar Period." Voenno-istoricheskii zhurnal, Jan. 77, p. 54.
- Maryuchin, COL P., (USSR). "Soviet Airborne Units in the Capture of an Airfield." Translation from Truppendienst, No. 1. 1984, pp. 42-44.
- Matz, LTC Lou, (USAF). "Airdrop, Is it Still a Viable Tactic?" Airlift Magazine, Spring 1988, pp. 5-9.
- McCain, Senator John S. III. "Proliferation in the 1990s: Implications for U.S. Policy and Force Planning." Strategic Review, Summer 1989, pp. 9-20.
- McQuie, Robert. "Battle Outcomes : Casualty Rates as a Measure of Defeat." Army Magazine, Nov. 1987, pp. 30-34.
- Norris, George. "Speculation or Fact? The Soviet 2S9." Field Artillery Journal, Jan-Feb 1987, p. 40.
- Pengelly, Rupert. "Main Armament Systems for Wheeled Gun - Vehicles." International Defense Review, Oct. 1989, pp. 1355-1373.

- Pfaltzgraff, Robert L. Jr. "The Army as a Strategic Force in the 90s and Beyond." Army, Feb. 1990, pp. 20-26.
- Reed, Fred. "Marines: Perfect for Rapid Deployment." Army Times, 25 Dec. 1989, p. 54.
- Roth, Margaret. "Operation Just Cause." Army Times, 1 Jan. 1990, pp. 27-38.
- Schemmer, B.F. and James Hessman. "The Airborne Obsolete?" Armed Forces Journal, 9 Nov. 1968, pp. 12-15.
- Short, Jim. "A visit to the Soviet Ryazan Higher Airborne Forces Command School." International Defense Review, June 1989, pp. 730-733.
- Stanglin, Douglas and Richard Chesnoff. "The Missile Trade in Launch Mode." U.S. News & World Report, 25 July 1988, pp. 32-38.
- Steel, Dennis. "Operation Just Cause." Army, Feb. 1990, pp. R1-8.
- Stiner, LTG Carl. "The Architect of Just Cause." Army Times, (Interview), 12 March 1990, pp. 1-18.
- Tugwell, BG Maurice A.J. "Day of the Paratroopers." Military Review, March 1977, pp. 40-53.
- Turbiville, Dr. Graham H. Jr. "A Soviet View of Helicopter Assault Operations." Military Review, Oct. 1975, pp. 3-15.
- Turbiville, Dr. Graham H. Jr. "Soviet Logistics Support Concepts Change." Army Logistician, March-April 1987, pp. 2-7.
- Turbiville, Dr. Graham H. Jr. and Holcomb, MAJ James F. "Soviet Desant Forces." International Defense Review, Vol 21, Sep-Oct. 1988, pp. 1-15.
- Turbiville, Dr. Graham H. Jr. "Soviet Airborne Troops." Soviet Armed Forces Review Annual, Vol 10, 1986-1987, pp. 146-157.
- Turbiville, Dr. Graham H. Jr. "Soviet Airborne Operations in Theater War." Foreign Policy, Vol XIII, 1986, pp. 160-183.
- Turbiville, Dr. Graham H. Jr. "Soviet Airborne Assault." Marine Corps Gazette, Oct. 1987, pp. 52-53.
- Turbiville, Dr. Graham H. Jr. "Ambush! The Road War in Afghanistan." Army Magazine, Jan. 1988, pp. 32-42.
- Vuono, GEN Carl E. "The United States Army is a Strategic Force." Armed Forces Journal International, Feb. 1989, pp. 60-64.
- Ware, COL Fletcher K. "The Airborne and a Strategic Concept." Military Review, March 1976, pp. 23-33.
- Watson, Russell. "The Invasion of Panama." Newsweek, 1 Jan. 1990, pp. 12-22.

Wolfowitz, Paul D. "Strategic Thinking in Today's Dynamic Times." Defense, Jan./Feb. 1990, pp. 8-11.

Zaloga, Steven. "Soviet Arms Exports: Cutbacks Ahead?" Armed Forces Journal, Dec. 1989, pp. 20-21.

### 3. GOVERNMENT DOCUMENTS:

Boyd, Kenneth L. Wheeled Versus Tracked Vehicle Study. (DTIC # AD-A166390), TRADOC ACN 070846, March 1985.

Department of the Army Pamphlet No. 20-232. Historical Study: Airborne Operations - A German Appraisal. Washington, D.C.: Government Printing Office, Oct. 1951.

Department of the Defense. Soviet Military Power: Prospects for Change. Washington, D.C.: Government Printing Office, Sep. 1989.

Department of the Defense. Soviet Military Power: An Assessment of the Threat. Washington, D.C.: Government Printing Office, April 1988.

Doughty, MAJ Robert A. The Evolution of the U.S. Army Tactical Doctrine 1946-1976. Fort Leavenworth, KS: Combat Studies Institute, Leavenworth Papers, Number 1, Aug. 1979.

Field Manual 71-100. Division Operations. (Approved Final Draft) Washington, D.C.: Government Printing Office, 15 Nov. 1988.

Field Manual 100-2-3. The Soviet Army Troops, Organization and Equipment. (Approved Final Draft) Washington, D.C.: Government Printing Office, Nov. 1988.

Field Manual 100-5. Operations. Washington, D.C.: Government Printing Office, May 1986.

Field Manual 100-15. Corps Operations. (Approved Final Draft) Washington, D.C.: Government Printing Office, Nov. 1988.

Field Manual 100-27/Air Force Manual 2-50. USA/USAF Doctrine for Joint Airborne and Tactical Airlift Operations. Washington, D.C.: Government Printing Office, Jan. 1985.

Fuerus, MG Christoph-Adolf. The Paratrooper Force in Transition. JPRS-WER-88-023, translated from Bonn WEHRTECHNIK, in German, March 1988.

Glantz, COL David M. Soviet Force Structure in an Era of Reform. Fort Leavenworth, KS: Soviet Army Studies Office, U.S. Army Combined Arms Center, March 1989.

Glantz, COL David M. The Soviet Airborne Experience. Fort Leavenworth, KS: Combat Studies Institute, Research Survey No. 4, Nov. 87.

House, Jonathan M. Toward Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine and Organization. Fort Leavenworth, KS: Combat Studies Institute, Research Survey No. 2, Aug. 84.

- Joint Chiefs of Staff PUB 3-0. Doctrine for Joint Operations. (Final Draft), Washington, D.C.: Government Printing Office, May 1989.
- Jones, Lee M. Operation Market-Garden and Significant Logistical Deficiencies Contributing to its Partial Failure. Fort Leavenworth, KS: Combat Studies Institute, Military History Anthology, Fall 1984, pp. 139-156.
- Luttwak, Edward N. Historical Analysis and Projection for Army 2000. Volume 1, Part 17, Soviet Airborne Forces 1930-1983, (DTIC # B085085) TRADOC Contract Number, DABT58-82-C-0055, 1 March 1983.
- Steinberg, Immo. The Wiesel Weapons Carrier: Possible Impact on Training, Command and Employment of the Paratrooper Force. JPRS-WER-86-121, translated from Herford KAMPFTRUPPEN, in German, July-Aug 1986.
- Turbiville, Dr. Graham H. Jr. and MAJ James F. Holcomb. Protracted War and the Role of Technology: The USSR. Fort Leavenworth, KS: Soviet Army Studies Office, U.S. Army Combined Arms Center, June 1987.
- United States Army. Army Focus. Washington, D.C.: HQDA (DACS-DMC), Nov. 1990.
- United States Army. Army Focus. Washington, D.C.: HQDA (DACS-DMC), June 1989.
- United States Army. Army Long-Range Planning Guidance. (Draft), Washington, D.C.: HQDA, ODCSOPS (DAMO-SSP), June 1989.
- United States Army. Army Posture Statement FY 91. By General Carl E. Vuono and Secretary of the Army Michael P. W. Stone, Washington, D.C.: Presented to the Second Session, 101st Congress.
- United States Army. Army Posture Statement FY 90/91. By General Carl E. Vuono and Secretary of the Army John O. Marsh, Jr., Washington, D.C.: Presented to the First Session, 101st Congress.
- United States Army. The Army Plan FY 1992-2007. Washington, D.C.: HQDA, ODCSOPS (DAMO-ZR), 6 Oct. 1989.
- United States Army Command and General Staff College Student Text 100-1. Navy and Marine Corps. Fort Leavenworth, KS: CGSC, June 1989.
- United States Army Command and General Staff College Student Text 100-2. U.S. Air Force Basic Data. Fort Leavenworth, KS: CGSC, May 1989.
- United States Forces, European Theater of Operations, General Board Report # 16. Organization, Equipment and Tactical Employment of The Airborne Division. Fort Leavenworth, KS: U.S. Army Combined Arms Center Library, Document No. N-13032.16, 1945.
- United States Forces, European Theater of Operations, General Board Report # 17. Types of Divisions Post-War Army. Fort Leavenworth, KS: U.S. Army Combined Arms Center Library, Document No. N-13032.17-2, 1945.



Vuono, GEN Carl E. The U.S. Army: A Strategic Force for the 1990's and Beyond. Washington, D.C.: U.S. Army White Paper, Jan. 1990.

Vuono, GEN Carl E. The U.S. Army: A Strategic Force for the 1990's and Beyond. Washington, D.C.: U.S. Army White Paper, Oct. 1989.

War Department Training Circular Number 113. Employment of Airborne and Troop Carrier Force. Washington, D.C.: Government Printing Office, 9 Oct 1943.

Yates, Lawrence A. Power Pack: U.S. Intervention in the Dominican Republic, 1965-1966. Fort Leavenworth, KS: Combat Studies Institute, Leavenworth Papers, Number 15, July 1988.

#### 4. STUDENT PAPERS:

Brady, LTC Terrence J., USAF. Airborne Proponency: Progress in a Joint Environment. Student Thesis, U.S. Army War College, Carlisle Barracks, PA., March 87.

Caldwell, MAJ John F. W., USA. Forced Entry: Does the Current Airborne Division Still Retain This Capability Under the Light Infantry Tables of Organization and Equipment. SAMS Monograph, USACGSC, Fort Leavenworth, KS., Jan. 87.

Crenshaw, Charles. Volume of Fire as an Effective Measurement of Infantry Performance in Battle. SAMS Monograph, USACGSC, Fort Leavenworth, KS., Jan. 86.

Kokko, MAJ Richard W., USMC. Joint Operations Involving Marine Amphibious Forces and Army Airborne Forces. U.S. Naval War College Thesis, Newport RI., June 1988.

Rodriguez, MAJ Joseph O., USA. David and Goliath - Can Airborne Infantry Defend Against Armor in Central Europe? SAMS Monograph, USACGSC, Fort Leavenworth, KS., Nov. 86.

Sherfey, MAJ Lloyd W., USA. Operational Employment of Airborne Forces: The Soviet Approach and Implications for NATO. SAMS Monograph, USACGSC, Fort Leavenworth, KS., April 87.

Snow, MAJ Joel J., USA. United States Army Airborne Forces: An Instrument of Land Power, 1990-2000. MMAS Thesis, USACGSC, Fort Leavenworth, KS., June 84.

Van Horn, MAJ F.E., USA. A Survey of Soviet Airborne History and Missions. MMAS Thesis, USACGSC, Fort Leavenworth, KS., May 74.

Waller, MAJ Thomas G., USA. Bolt from the Sky: The Operational Employment of Airborne Forces. SAMS Monograph, USACGSC, Fort Leavenworth, KS., May 1986.

## 5. OTHER SOURCES:

Army AirLand Battle Future Forces Division, Current Forces Directorate, Combined Arms Combat Development Activity (Cited hereafter as ALBF-F). "Action Officer Workshop on Future Force Design and Development." (Briefing Notes) Fort Leavenworth, KS., Sep. 1989.

ALBF-F. "General Officer Workshop on Future Force Design." (Briefing notes) Fort Leavenworth, KS., 4 Dec. 1989.

ALBF-F. The Light Forces Modernization Plan. (Draft) Fort Leavenworth, KS., 14 Dec. 1989.

ALBF-F. "Philosophy of Echelons for the United States Army." (Draft White Paper), Fort Leavenworth, KS., Dec. 1989.

Center for Army Lessons Learned. "Heavy-Light Lessons Learned." Fort Leavenworth, KS., 1 June 1989.

Headquarters, 82d Airborne Division. 82d Airborne Division Capabilities Book 1988. Fort Bragg, NC: AC of S, Force Integration, April 1988.

Headquarters, TRADOC. Memorandum from GEN John W. Foss to commanders TRADOC, Subject: AirLand Battle-Future: An Evolving Concept. 1 March 1990.

Headquarters, 82d Airborne Division. Letter from MG G.S. Meloy to Commander XVIII Airborne Corps, Subject: Concepts and Requirements Review for Airborne Forces in the Army of the 1990's. 22 Jan. 1981.

Headquarters, 82d Airborne Division. Memorandum For, Subject: 82nd Airborne Division Generic Force Packages. 21 Jan. 1988.

United States Army Command and General Staff College. "Operation Urgent Fury." Grenada Briefing For International Officers, Fort Leavenworth, KS., 1985.

Turbiville, Dr. Graham H. Jr. "Soviet Airborne." (Briefing Notes), Soviet Army Studies Office, Fort Leavenworth, KS., Aug 1989.

Voroshilov (Soviet) General Staff Academy. "Employment of Military Transport Aviation to Assault Land an Airborne Division in the Rear of the Enemy." (Lecture Notes, mid-1970s), Translated by the Soviet Army Studies Office, Fort Leavenworth, KS., Dec 1989.

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